

Flight, March 18, 1911.

# FLIGHT

First Aero Weekly in the World.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

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MARCH 18, 1911.

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*Hendon 1911 B.M.*



AT THE LONDON AERODROME, HENDON.—In the upper photograph the scene outside the Hendon aerodrome is seen on the first day for the Hendon-Brooklands flying competition. In the lower picture the arrival of a new biplane from America for the Grahame-White School is depicted.

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## THE COMING SHOW.

THERE are many points of view from which a Show can be regarded. That is, not an Aero Show alone but any kind of Show. To some it is even romantic, to others it is merely commonplace. It may only be a grocery exhibition, but nevertheless there is much that is of deep interest to the man who has anything in common with the objects of the particular industry to which it is devoted, and to the imaginative there is much that is more than interesting, verging, as we say, on the edge of the romantic. That being true of any kind of exhibition, however dull and prosaic a trade show it may be, how deeply tinged with romance is that exhibition which opens its doors at Olympia on Friday next week. Of its success as a commercial Show it is early yet to prophesy, but so firm a hold has the new science of the navigation of the air taken upon the popular imagination that it is difficult to conceive that it can be found anything but a success when the end of the week arrives and it becomes a simple question of accountancy and profit and loss. It is not the commercial side of the Show, however, of which we would speak at the moment, though that is important enough in all conscience. Aviation may be steeped in romance, as indeed it is, but that is a commodity which, while it may inspire the poets, will not bring dividends to shareholders other than those in successful publishing houses. Certain it is that while the romance of the game is an exceedingly valuable asset, in enabling an interest and hold to be obtained upon that great section of the public, it is at best only an adjunct to that spirit of commercialism that must of necessity pervade the movement if it is to live and flourish. That may not be poetry, but it is sound truth. Hence the Show which will shortly be running. In spite of all that romantic halo which surrounds aviation and the successful aviator, the Show is being run purely as a business venture, by promoters and exhibitors alike, and it is rather this bald fact and its bearings which we would discuss here and now.

The Aero Show of 1911 marks an epoch in the history of the great movement of which it is representative. Two years ago the industry and the movement itself may well have been likened to a chrysalis in which the first signs of that life which eventuates in the mature butterfly are beginning to make themselves noticeable. Flight had arrived, but no one had identified it, if we may be permitted to put it that way. The Show was interesting enough both to the initiated and to the general public, though the latter declined to take things very seriously. As in the case of the motor car in the days of its early evolution, here was something new and interesting simply because it was new, but as for its being of any real and practical value—well, it could never be that. It interested and amused in the same way that the Teddy Bear interested and amused people when it first made its appearance in the windows of the toyshops. Flights had been accomplished, some of them very fine flights, but the aeroplane had only proved that it was an instrument very much like the butterfly to which we have already likened it and only to be used for flutters in the sunshine. Even that was something, but what the great public had not realised at the time was this was only the beginning out of which was to grow a great industry whose possibilities were literally limitless. That may be thought by some to be going a little far, even in these times when the aeroplane is recognised to have taken its place among

other and more prosaic vehicles of locomotion. But to the doubters we would say, look at the story of the motor car. It was a small minority who took it seriously in its early days. To the majority, it would never be anything but a toy—interesting and ingenious no doubt, but nevertheless a toy. And now all that need be said to the one-time scoffers is, *circumspice*.

Two years ago there was really very little in the Show to attract the public. There were one or two machines that had actually left the ground, and a lot of others which their inventors fondly hoped would achieve for them fame and fortune. Some have worked out in accordance with anticipations—others, and the majority, have disappeared from mortal ken. Then one walked round the building hoping and yet fearing for the future of a new industry, and with the knowledge in one's mind that although progress had been achieved in a manner far beyond the most sanguine belief of half a dozen years before, the path had only just been entered upon.

Last year matters had progressed very considerably, although even then aviation on its industrial side had not developed to a point which could justify all hard-headed business men in assuming its immediate future. The machine had evolved to a point in which it was possible to say that there was a really distinct prospect for it, but just along what lines he would have been a bold man who would have ventured upon definite prophecy. Now, in 1911, the case has yet again undergone a very complete change. The Aero Show, for the first time in history, partakes unmistakably of the character of an industrial exhibition. No longer is there any doubt as to the practicability of dynamic flight. The only question which the man in the street asks himself is that of how far the movement will go. In a word, the aeroplane has established itself not only as a true mechanical accomplishment, but as one of the industrial features of the world. That stage of development has been reached when public investment in any concern devoted to the building and practical use of the aeroplane would depend upon whether or not the pure commercial merits of the scheme constituted a sound business proposition, since now the mechanics of the thing would be taken for granted by everyone.

Another point on which congratulation is justly warranted is on the markedly British character of the Show. At last home manufacturers have taken their place in the ranks of the world's producers, and whether it be the complete machine, the motor or the accessory and component parts they may claim to be abreast of all competitors mechanically and commercially. As a matter of cold fact, we incline to the opinion that by the time a careful analysis of things has been made it will be found that in many ways British firms are actually ahead. In the matter of engines, for example, there are several British motors which will be seen at Olympia that have nothing to fear from anything the best of the foreign factories have to show. To mention them by name would be invidious and indeed it is not at all necessary, for those who have any knowledge of things are as fully aware of the facts as we ourselves. In the evolution of the complete machine, the Show teaches that the British constructor is doing his part in bringing it to that perfection towards which all are striving.

Viewed as a whole the prospects of the Show are distinctly encouraging in its auguries for the future and, after all, that is what matters at the moment.

## THE BRISTOL BIPLANE—MILITARY TYPE.

BRISTOL is a city that has been associated with most of the stirring events in English history, and yet many are apt to forget what manner of men this secluded town in the west has sent out into the world on the nation's behalf. From Bristol sailed the ships of old that brought to light America, and, pioneer in two elements, it is Bristol to-day that is doing so much towards the creation of the aerial fleet of the future. Sir George White is a Bristol man and well worthy to follow in the steps of Cabot, Humphry Davy and Stringfellow—to mention only three Bristol men whose deeds need no recalling to our readers—for having succeeded

it is out of the confidence born of such evidence of steady progress that there comes the financial support without which no new movement can hope to permanently establish itself in the interests of social economy. It is, therefore, as much towards the firm as towards the machines they are making that readers' thoughts will naturally turn on any reference to the Bristol biplane.

Of the machine itself there is not much to be said that cannot be explained in a very few words, for the situation may be summed up in saying that the Company adopted the eminently commercial policy of following a proved

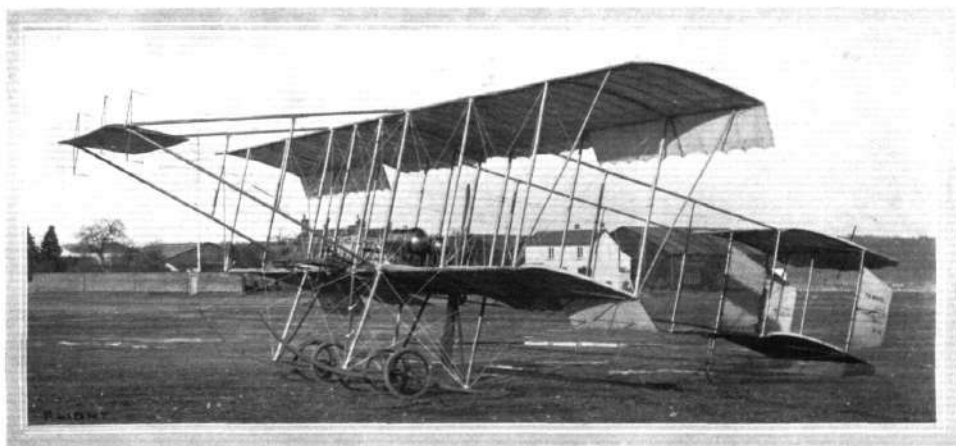


Front view of the Bristol military type biplane.

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so well in his work of pioneering the tramways, he has turned his enterprise and ability into the work of pioneering these new vehicles of the air. And, above all else, it needs at the present time, as it will need in the future, a master mind, capable of appreciating as one clear picture the commercial aspects of the situation, to realise in full the possibilities of the new locomotion. Not every day is there to be found a man of this stamp keen enough to take up this side of aviation seriously, yet with all the enthusiasm of youth. Not every industry has at its inception the immeasurable advantage of numbering in its ranks such an important unit as the British and Colonial Aeroplane Company is to-day, and must in the natural order of things continue to remain. Stability is not only desirable in aeroplanes; it is needed, perhaps, even more in the industry that makes them, for

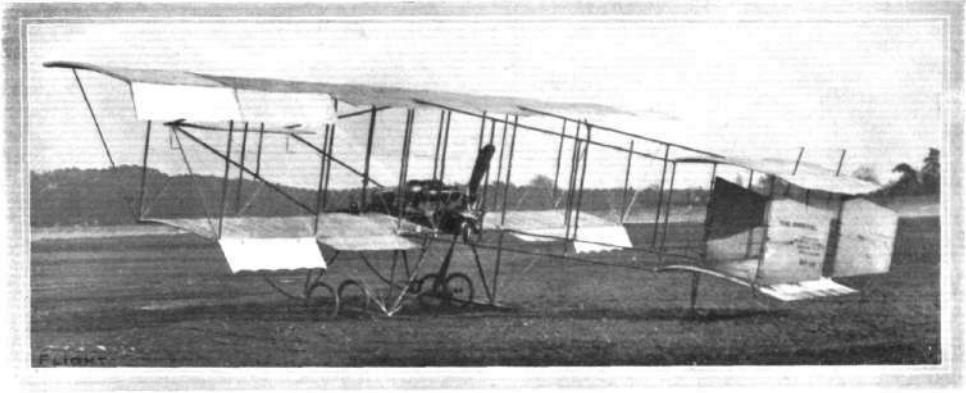
type that was already not only successful but popular, so that they could devote their energies to the perfection of constructive detail and general excellence of workmanship. The particular model we have selected for the purpose of illustration is their military type machine, which we thought might be the more interesting to our readers as a slight variety on the standard pattern Farman, which is the type to which the Bristol biplane at present belongs. This military model is characterised by the extended span of the upper plane, which affords an appreciable increase in the supporting area, and enables either two passengers to be carried in addition to the pilot, or which is, perhaps, still more serviceable from a military point of view—it permits of an extra large reserve of fuel when only one passenger is carried. Another distinctive feature of this machine is



Side view of the Bristol military type biplane. The balancing planes and method of supporting the extensions of the top plane are very prominent in this illustration.

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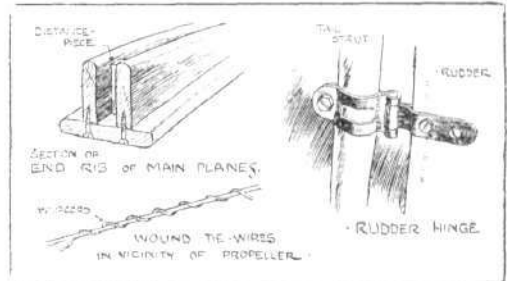
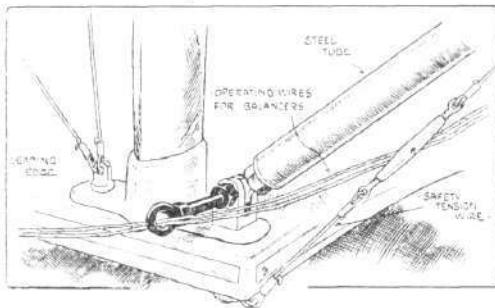


View from behind of the Bristol military type biplane.

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to be found in the three rudders that are supported on the tail. These rudders are controlled as usual by a pivoted foot-rest, while the universally pivoted vertical lever, under the pilot's right hand, controls the balance by manipulating

lift for the same velocity of flight. As a result that side of the machine heels up in order to restore balance by correcting a list, or in order to artificially bank the machine preparatory to a turn. When balancing, therefore, the pilot

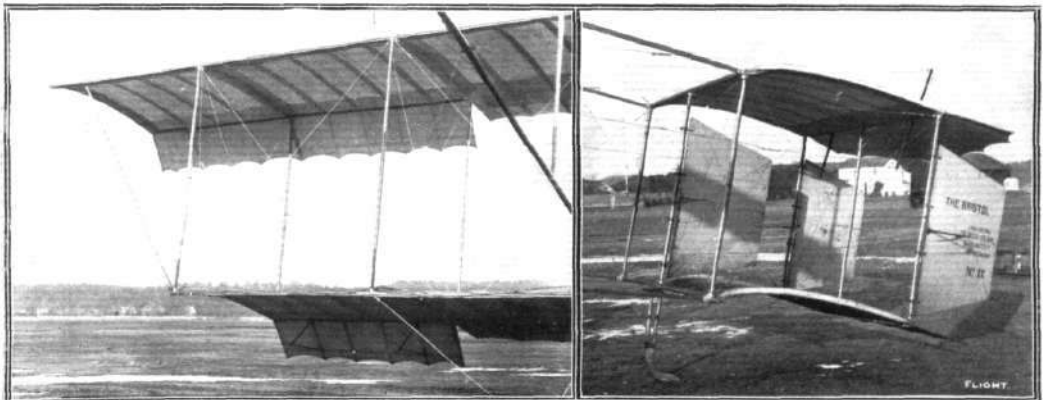


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Sketches illustrating some minor constructional details on the Bristol military type biplane. That on the left shows the attachment of one of the diagonal struts used for supporting the extensions to the upper plane.

the balancing flaps on the extremities of the main planes and the elevators fore and aft on the machine. A sideways movement of the lever to the right draws down the balancer on the pilot's left, thus increasing the effective angle of the a/c on that side of the centre, and thereby increasing the

moves the lever sideways towards the side of the machine that tends to rise above its normal position, and simultaneously checks any tendency to swerve by the rudder. Elevator movements are accomplished by a to-and-fro motion of the same lever, the elevator in front being inter-



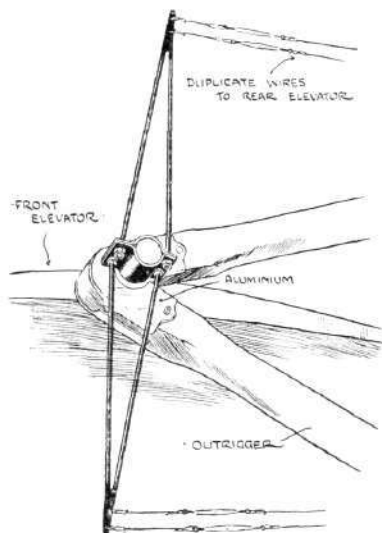
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Detail views of the Bristol military type biplane, showing the balancing planes and the tail. The three rudders in the tail constitute a characteristic feature of this machine.



connected with the rear elevator, which forms an extension of the tail. One of the accompanying sketches shows an interesting constructional detail in connection with the front elevator, which is rocked on its trunnions by a light steel lever, coupled up at each extremity to the control lever by wires in duplicate.

The other sketches also show several interesting constructional features of this machine, notably the method of supporting the extensions to the upper main plane, which form the characteristic feature of the military model. These extension planes are braced by diagonal tubular steel struts which are anchored to the lower main planes by attachment to the sockets of the vertical struts. The steel tube is capable of taking tension and compression stresses, but a safety tension wire has also been introduced, on the principle of duplicating such members, which is characteristic of the design of this machine. It will be noticed that all the control wires, for instance, are in duplicate. Another little detail about the wires on this machine which is worth observing is that those in the vicinity of the propeller are bound with whipcord, so that should they break they will be less likely to fly about and get caught in the propeller. Two other interesting constructional details are shown in the illustration that includes a sketch of the whipcord winding round the wire. One is the extra strong end rib employed in the construction of the framework of the main planes, the other is the very neat hinge by which the rudder is mounted on the tail strut. As may be seen from the photograph, four such hinges are employed for the support of each of the three rudder planes. Before leaving the consideration of this machine reference should be made to the fact that, as set out below, the British Government have ordered four to be delivered next month.



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Sketch illustrating the lever attached to the elevator on the Bristol military type biplane.

## THE ARMY AND AERONAUTICS.

FOLLOWING upon the information given last week by Mr. Haldane, the statement in connection with the Army Estimates made by the Secretary for War in the House of Commons on Tuesday night is of a somewhat reassuring nature, that aviation in the future is to be considered of some account in the affairs of the nation.

Mr. Haldane said: "The total provision in the Army Estimates this year is £133,300. In addition to that there is the money spent on the Teddington Special Committee, under Lord Rayleigh, which comes under the Civil Service Estimates. We have added about £50,000 this year on the whole. Under the new Army Order for the Air Battalion, officers will be appointed for a period of four years, if found suitable after a probationary period of three to six months. Of the officers appointed two are under probation, four have obtained pilot's certificates, and six other officers on the active list are also certified pilots. The non-commissioned officers and men will be Royal Engineers.

"Besides the present dirigibles the 'Beta' and 'Gamma,' in the present financial year a new dirigible, the 'Delta,' has been under construction, and will be completed at the end of April. The design was prepared in the balloon factory after considerable experiment and research to fulfil tests for the Lebaudy airship ordered by the *Morning Post*. The materials are of British manufacture, and the capacity of the gasbag is 140,000 cubic feet, sufficient to carry five persons in addition to wireless equipment. I am told that the speed is 42 miles an hour. It is a very modern dirigible.

"Then I come to the French machines. The Lebaudy, the gift of the *Morning Post*, has been repaired, and is now ready for inflation and trial. The Clement-Bayard is about to receive a new gasbag, and we are providing shed accommodation for it. I think we have as many dirigibles as we can handle in the state of instruction of our corps.

"Now I come to aeroplanes. We have purchased five, which are available for practical instruction. Three are of the latest pattern, the Farman, Paulhan, and Haviland. Besides that we have just completed the purchase of four additional biplanes from Sir George White, of Bristol, of the British and Colonial Aeroplane Co. They are to be delivered in April, and Sir George White has got an establishment of skilled pilots with whom we hope to work on Salisbury Plain. We shall probably make use not only of these biplanes, but of others which he has for enabling our people to practise observation and piloting. We have bought four, and that will give us nine aeroplanes altogether. We intend to buy more as soon as we get on, but it is no use having more than our people can work. We have a new full-size shed at Farnborough and a portable shed. Then we have made three sheds for aeroplanes on Salisbury Plain besides a portable shed.

"As soon as the new dirigible 'Delta' has been tested another new

dirigible is to be put in hand embodying all improvements. Later on there will be still another put in hand, and we hope to build two new dirigibles as we gain experience in the next financial year.

"The balloon factory, really the dirigible factory, has been completely reorganised, and has got a very efficient civilian staff of experts under a gentleman well known in aeronautics. Considerable changes have been made and new machinery introduced, by which three times the output of hydrogen will be obtained. In solving the various problems in connection with the construction of these dirigibles and in designing and equipment of the sheds we have received very valuable assistance from the Advisory Committee under Lord Rayleigh. The Committee is not there to invent or design, but to solve problems, and I have a confident feeling that this highly-equipped Committee is ahead of the rest of the world in this field of scientific knowledge. At any rate it is producing material which is most valuable for us at this stage.

"In addition to the regular corps we are forming a technical reserve, and we are also proposing to form a Territorial section. There are a large number of men in the Territorial Force with extraordinary technical skill. We have got a place for them, and we shall be able to put a dirigible and an aeroplane at their disposal.

"There is a committee sitting to organise the technical reserve, and on it are Mr. Grahame-White, Mr. Roger Wallace, Dr. Glazebrook, and other well-known experts. I hope the pains we have taken to organise this will result in some very substantial fruit."

### The Army Aeroplanes.

IN a printed reply to a question in the House of Commons by Mr. Lonsdale, Mr. Haldane last week stated that the Army aeroplane which was wrecked has been repaired, and is now serviceable. Two of the Army machines are not up-to-date, and the improvement of one is under consideration. Both machines, however, are available for instruction. The provision of additional machines of modern type is in hand.

### The Air Battalion.

IN answer to a further question by Mr. Lonsdale, the Secretary for War pointed out that the restriction that men joining the Air Battalion must have a minimum of two years' service was made because it was clearly desirable that officers should not have to learn the rudiments of military training after joining the battalion. It was also clearly desirable that an officer joining should be young, not too heavy, and of rank junior to those under whose orders he would serve. Officers having special qualifications could be specially considered if they did not in all respects comply with the conditions.

# The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

## Annual General Meeting.

The Annual General Meeting of the Members of the Royal Aero Club of the United Kingdom will be held on Thursday March 30th, 1911, at 5 o'clock, at 166, Piccadilly, London, W.

### AGENDA.

1. To elect President, Vice-President, and Council for the ensuing year. The following are recommended by the Committee for re-election:—

#### Hon. President.

His Grace the Duke of Argyll, K.T.

#### Vice-President.

Field-Marshal the Right Hon. Earl Roberts,  
K.G., K.P., V.C., G.C.B.

#### Council.

H.I.H. Prince Roland Bonaparte.  
His Grace The Duke of Sutherland, K.G.  
The Right Hon. The Earl of Crawford and Balcarres, K.T.,  
LL.D., F.R.S.  
The Right Hon. The Earl of Hardwicke.  
The Right Hon. The Earl of Lonsdale.  
Lord Howard de Walden.  
Lord Kinnaird, F.R.G.S.  
Right Hon. Lord Suffield, G.C.V.O., K.C.B.  
Lord Montagu de Beaulieu.  
Lord Llangattock.  
Admiral Hon. Sir Edmund Fremantle, G.C.B.  
H.S.H. Prince Blucher of Wahlstadt.  
Count Henry de La Vaulx, Vice-President Aero Club of France.  
Sir David Salomons, Bart.  
The Right Rev. Bishop Welldon.  
Admiral of the Fleet Sir Edward Seymour, G.C.B., G.C.V.O.,  
O.M.  
Professor Sir William Crookes, F.R.S.  
Sir Norman Lockyer, K.C.B., F.R.S.  
Sir Hiram S. Maxim.  
Martin Dale.

2. To announce result of ballot for Committee.

3. To confirm rule:—

**Life Membership.**—The subscription for Life Membership shall be twenty-five guineas for members elected as ordinary members prior to January 17th, 1911, and thirty guineas for members elected after that date.

By order of the Committee

HAROLD E. PERRIN, Secretary.

### Committee.

In accordance with the rules, the Committee shall consist of eighteen members. Members are elected to serve for two years, half the Committee retiring annually. Retiring members are eligible for re-election.

The following is a list of those who have been nominated, and who have signed their willingness to serve:—

Lieut. B. H. Barrington-Kennett	*Prof. A. K. Huntington
*Griffith Brewer	*F. K. McClean
G. B. Cockburn	A. Ogilvie
*Major C. de W. Crookshank, R.E.	Mervyn O'Gorman
Capt. Bertram Dickson	*C. F. Pollock
*John Dunville	*Stanley Spooner
D. Graham-Gilmour	G. Holt Thomas
*Col. H. C. L. Holden, R.A., F.R.S.	Sir George White, Bart. Howard T. Wright

\* The names marked with an asterisk are those of members of the present Committee.

Members are reminded that a ballot paper for the election of nine candidates to seats on the Committee of the Club will be forwarded to them at least seven days before the date of the annual general meeting.

No Ballot Paper which is signed, or on which the number of Candidates voted for is more or less than the number of vacancies, or which is received by the Secretary later than 12 noon, Wednesday, 29th March, 1911, will be valid.

## Committee Attendances.

The number in brackets shows the maximum attendance possible.

Name.	Executive.	Finance.	Competitions.	House.	Balloon.	Technical.	Foreign Conferences +	Library.	Grounds Inspection.
<i>Note.</i> —Where no attendances are recorded against a member's name in the following table it signifies that that member is not a member of the particular committee.	(42)	(17)	(11)	(2)	(2)	(4)	(3)	(1)	

### Meetings Attended.

Griffith Brewer...	37	14	2	2	2	2			
Ernest C. Bucknall ...	40	16	10	2					6
Col. J. E. Capper, C.B., R.E.	10								
Maj. C. de W. Crookshank, R.E.	2					2			4
John Dunville ...	18			1					3
Cecil S. Grace ...	5								
Capt. A. H. W. Grubb, D.S.O., R.E.	3								
Col. H. C. L. Holden, R.A., F.R.S.	10*		7						
Prof. A. K. Huntington ...	30	11	10			4		1	4
V. Ker-Seymer ...	14		3	1			3		4
E. Manville ...	2†								
F. K. McClean ...	17						1		
J. T. C. Moore-Brabazon ...	27		8				1		4
C. F. Pollock ...	38				2				
Hon. C. S. Rolls ...	7		1						
Sir Charles D. Rose, Bart., M.P.	12	8							
J. Lyons Sampson ...	7					4			
A. Mortimer Singer ...	7								
Stanley Spooner ...	40							1	
Hon. A. Stanley, M.P.	2	1							
Roger W. Wallace, K.C.	32	8	7		2		1		
Maj. Sir A. Bannerman, Bart., R.E.					2				
A. E. Berriman ...						2			
Philip Gardner...						2			
C. G. Grey ...								1	
C. G. Grunhold ...									
Maj. F. Lindsay Lloyd			10			1			3
Mervyn O'Gorman ...			8				2		
J. W. Orde ...			1						
G. Holt Thomas ...								1	
G. Stanley White ...								1	

\* Elected September 6th, 1910. Meetings held since election, 21.

† Elected February 7th, 1911. Meetings held since election, 4.

‡ Includes two meetings of Federation Aéronautique Internationale and one of the European Circuit Conference.

### Committee Meeting.

A meeting of the Committee was held on Tuesday, the 14th inst., when there were present:—Mr. R. W. Wallace, K.C., in the chair, Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Major C. de W. Crookshank, R.E., Prof. A. K. Huntington, Mr. J. T. C. Moore-Brabazon, Mr. C. F. Pollock, Mr. Stanley Spooner, and Harold E. Perrin, Secretary.

**New Members.**—The following members were elected:—

Fritz William Bartelt, Capt. A. G. Board, J. D. P. Chataway, Capt. Harold Danvers, Hugh G. Doggett, Capt. S. D. Massy, W. G. Verdon Smith, Henry de Grey Warter.

**The E. Manville £300 Prize.**—The rules drafted by the Competitions Committee were passed subject to the approval of Mr. E. Manville.

**Michelin Prize No. 2.**—The rules drafted by the Competitions Committee were passed subject to the approval of M. Michelin.

### “Daily Mail” Second £10,000 Prize.

A joint meeting of the Executive and Competitions Committees was held on Tuesday, the 14th inst. There were present:—Mr. R. W. Wallace, K.C. (in the chair), Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Major C. de W. Crookshank, R.E., Prof. A. K. Huntington, Major F. Lindsay Lloyd, Mr. J. T. C. Moore-

Brabazon, Mr. Mervyn O'Gorman, Mr. C. F. Pollock, Mr. Stanley Spooner, and Harold E. Perrin, Secretary.

The following gentlemen attended at the invitation of the Committee:—Mr. G. B. Cockburn, Mr. A. V. Ebbelwhite, Mr. Alec Ogilvie, Mr. T. O. M. Sopwith, and Mr. Howard Wright.

Mr. Claude Grahame-White was unable to attend.

The final draft of the rules for the *Daily Mail* second £10,000 Prize was considered, and with slight alterations approved. The rules will be published next week.

## International Aero Exhibition at Olympia.

The International Aero Exhibition, held by the Society of Motor Manufacturers and Traders under the auspices of the Royal Aero Club, will open on Friday, March 24th, and terminate on Saturday, April 1st, 1911.

The following machines will be exhibited on the Club Stands:—

Blériot 100-h.p. Gnome with which C. Grahame-White won the Gordon-Bennett Aviation Trophy.

Howard Wright biplane with which T. O. M. Sopwith won the Baron de Forest £4,000 prize.

Cody aeroplane with which S. F. Cody won the British Empire Michelin Trophy.

"Baby Wright" biplane as flown by Alec Ogilvie in the Gordon-Bennett Aviation contest at Belmont Park.

There will be in addition to the above a large exhibit of models. Members of the Royal Aero Club will be admitted free on production of their membership cards.

A room in the Princes' Gallery will be placed at the disposal of the members during the Exhibition.

## Certificate of Performance of an E.N.V. 8-cylinder Motor.

Wednesday, March 8th, 1911.

Fitted with high-tension magnets and coil and battery ignition. Water for cooling supplied from auxiliary tank, circulation induced by pump on motor. Petrol: Shell from gravity-fed tank.

Engine started 12h. 7m. 30s. p.m. developing 60 brake horse-power. Engine stopped at 12.46 p.m., and re-started 12.47 p.m.

Cause of stop: Obstruction in petrol pipe from tank to carburetor.

At 2.16 p.m. the engine ran somewhat irregularly, the brake horse-power dropping to 56. At 2.25 p.m. revolutions were

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regained and 60 brake horse-power indicated. From 2.27 p.m. to the end of the run the engine developed 66 brake horse-power. The engine was stopped at 3h. 8m. 30s. p.m. With the exceptions noted above the engine developed 60 horse-power throughout the run.

At 3h. 11m. 30s. p.m. the engine was again started without any adjustments having been made, and developed 66 horse-power within a few seconds.

A. K. HUNTINGTON } Technical  
Major F. LINDSAY LLOYD } Committee.

HAROLD E. PERRIN, Secretary,  
166 Piccadilly, London, W. March 9th, 1911.

Note.—The horse-power was tested by a Walker's fan dynamometer and Elliott's speed indicator, the horse-powers stated being those shown on the diagram supplied by the makers of the dynamometer for the speed of the engine and position of the fan blades.

## Gordon-Bennett Aviation Cup.

The following countries have entered for the Gordon-Bennett Aviation Cup:—

America.	France.	Great Britain.
Austria.	Germany.	

Each country will be represented by three competitors. The contest will be held on Wednesday, June 28th, 1911, and the Committee of the Royal Aero Club will make their final decision as to the course within the next few days.

In order to give as much time as possible, the Royal Aero Club has extended the date of entry for the British competitors to May 1st, 1911. Intending competitors are requested to notify the Secretary of the Royal Aero Club on or before that date, of their willingness to compete, if chosen. Entries must be accompanied by a remittance of £20, which amount will be returned should the entrant not be selected.

## Presentation to Club.

Mr. G. Holt Thomas has kindly presented to the Club the lever of the Farman aeroplane used by Louis Paulhan in winning the London to Manchester *Daily Mail* £10,000 Prize.

HAROLD E. PERRIN.  
Secretary.

166, Piccadilly.

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# PROGRESS OF FLIGHT ABOUT THE COUNTRY.

NOTE.—Addresses, temporary or permanent, follow in each case the names of the clubs, where communications of our readers can be addressed direct to the Secretary. We would ask Club Secretaries in future to see that the notes regarding their Clubs reach the Editor of FLIGHT, 44, St. Martin's Lane, London, W.C., by first post Tuesday at latest.

## Aero Models Association (CANTON HOUSE, WESTMINSTER).

THE next paper before members will be read at Canton House, on Tuesday, March 21st, at 8 o'clock, when Mr. F. B. Beringer will deliver a lecture entitled "The Manufacture, Properties and Use of Elastic Motors."

**S.E. Metropolitan Branch.**—A meeting was held at the Central Hall, Peckham, on Thursday last week, when Mr. W. H. Sayers gave a very interesting lecture on "The Construction of Aero-Models." The lecture was illustrated by practical demonstrations, among them being the method of staying rods and the various methods of constructing planes and propellers. Built-up propellers were shown in the different stages of construction, and many valuable hints were given. On the conclusion of the lecture a keen discussion ensued on the specimens of constructional work which had been exhibited.

**North Metropolitan Branch.**—A Northern Branch of the Aero-Models Association is in course of formation. Mr. Malcolm B. Ross, of 15, Highgate Avenue, Highgate, N., is acting as hon. secretary *pro tem.*, and is being assisted by the following preliminary Committee:—Messrs. Pidsley, Edwards, Brosse, Paine, Sperrin, and Murray. A meeting place and practice ground is being negotiated, and any member who can assist by forwarding particulars of suitable places is asked to communicate with the Secretary.

## Birmingham Aero Club (165, HAMPTON STREET).

In connection with the Model Exhibition the railway companies have arranged to run excursions to Birmingham and Bourville (Midland Railway) from London and the Midland centres. The Exhibition ground is close to the station.

The club will do their best to obtain lodgings for visiting competitors. Arrangements will also be made to fly models for owners unable to come themselves.

The last day for receiving entries is April 3rd. Later entries will only be received if accompanied by an extra late fee, as it is essential to make the catalogue and programme as complete with information as possible to the spectators.

## East London Aero Club (ALEXANDRA HOTEL, STRATFORD, E.).

THE glider that is being constructed by the members of the club is of the "tail first" or Valkyrie type. The main plane has a span of 30 ft. and a chord of 6 ft. A scale model of the machine has been constructed, and experiments are being conducted with the object of ascertaining its efficiency.

A model section of the club, to deal exclusively with this branch of aeronautics, has been temporarily inaugurated, and officers will be elected at the next meeting.

Owing to the great area included in East London, and the number of inquiries from boroughs and districts far distant from the present workshop, it has been found advisable to establish branches. The first one of these is the Mile End and Bow section, and as soon as possible a workshop will be opened in the neighbourhood of Burdett Road, E.

Persons interested in aviation residing in this or any other district in East London will do well to write to Mr. E. A. Sissons for fuller particulars.

A model flying meeting will be held on Saturday afternoon, March 25th, at the Handley Page, Ltd., ground at Barking (by kind permission).

## Midland Aero Club (GRAND HOTEL, BIRMINGHAM).

THERE was a good attendance of members at headquarters on Thursday of last week to listen to the very interesting lecture by Mr. S. F. Cody on his aeronautical experiences. These dated from the initial experiments with kites in America made twenty-three years ago, and the lantern views of the tests made with man-lifting kites and afterwards a glider proved to be very instructive. Mr. Cody also reviewed his efforts to improve the dirigible made in the Government factory. Although he thought the dirigible might prove of use in many directions, his faith was pinned to the aeroplane. By means of the lantern Mr. Cody explained at some length the various uses which could be made of kites in time of war, and these remarks were followed with keen interest.



# BRITISH NOTES OF THE WEEK.

## No. 1 Stand at Olympia.

"FLIGHT" stand at Olympia Show, opening next Friday, will be No. 1, immediately to the right after entering the building by the main entrance facing Addison Road Station. We shall be pleased to have a call from our many supporters.

*Anchor*



"Flight" Copyright.

The new Edwards rhomboidal biplane at Brooklands out for an airing on Saturday last.—This machine, it will be remembered, was described in FLIGHT on February 5th, 1910. Flying in perfect form above is Capt. F. H. Wood on a Bristol machine.

## The First Aerial Post.

THE honour of having the first aeroplane mail service appears to have been obtained by India, where Capt. Windham, having obtained the necessary permission from the Director-General of Post Offices in India, has inaugurated an aerial post between the Allahabad Exhibition and the receiving office at Allahabad. A



FIRST OFFICIAL AERIAL POST.—On February 16th letters were officially received in India for "Aerial Post" by the Postmaster-General of the United Provinces for the first time in the history of the world. Above, by the courtesy of the Rev. C. E. Doudney, of St. Luke's, Bath, we reproduce the envelope of one of the first of these communications received in the ordinary course by Miss Doudney, and bearing both the special cancelling stamp, "First Aerial Post, U.P. Exhibition, Allahabad, 1911," and the Allahabad post-mark.



"MERCURY," THE SINGLE-SEATER MONOPLANE OF THE BLACKBURN AEROPLANE CO., LEEDS.—These machines are now at work at the Blackburn Flying School, Filey, under the supervision of Mr. B. C. Hucks, who has been with Mr. Grahame-White for nearly a year, and was with him on his American tour. Mr. Hucks has been making some excellent flights on this particular machine.

special cancelling die was cut in the postal workshops at Aligarh and the accompanying photograph shows an envelope which contains a letter transmitted by this novel means. Quite a large number of the letters which arrived by the Indian mail on Saturday last bear this novel postmark, and doubtless when this mode of carrying mails is a thing of ordinary routine, these early mementoes will have considerable interest attaching to them as historical souvenirs.

## Mr. Morison at Shoreham.

ALTHOUGH Mr. Morison was unable to accept the invitation to lunch on Saturday with the Rev. H. B. Bowlby, Headmaster of Lancing College, he determined to fly over during the day provided weather conditions were favourable. Accordingly at 4.15, the gusty wind having died down, Mr. Morison left the Shoreham Aerodrome, steering straight for the college. Arriving there he made three wide circles above the building then gradually descending in a series of spirals on to the college cricket ground. The restricted space at this landing point was the cause of a slight mishap, the machine running into a hillock and damaging the elevator, as a result of which it was deemed inadvisable to attempt to fly back to the aerodrome. Mr. Morison, after tea with the Headmaster, spent some time explaining the various parts of his machine to the pupils at the college.

## Proposed London to Bedford Flight.

GREAT interest is being taken in Bedford in the proposal that two old boys of Bedford Grammar School, Messrs. Barber and Chambers, should fly from London to Bedford on Valkyrie monoplanes. The start will take place from the London Aerodrome at Hendon, while the finishing point will be the sports field at Kimbolton Road.



# FROM THE BRITISH FLYING GROUNDS.

## Brooklands Aerodrome.

A BRIGHT evening on Tuesday last week with a light north-east wind tempted several machines out for work. Mr. Sopwith, who was carrying passengers, had a narrow escape when carrying Miss Smith. He was just coming round the corner at the back of the sheds when his engine started to misfire badly, but he just managed to land on the ground near his shed. Mr. Astley took Mr. Hamel and Mr. Sassoon up on the "Big Bat." Mr. Astley, who handles this machine well in the air, has not yet had time to completely master the trick of landing the machine to the best advantage. Mr. W. H. Dolphin was out on the Hanriot and showed very steady progress, and Mr. Ducrocq made flights with and without passengers. Mr. Pixton was making straight trips on the Avroplane with an eleven stone passenger.

Wednesday was a busy day, and a fair number of people watched the flying. Mr. Sopwith was up in the morning with Mr. Hamel as passenger, but his engine was not up to the mark, and for the same reason he could not do much with his monoplane. A puffy wind sprang up about lunch time. Mr. Kemp came out and made a trial flight before going for his certificate. Finding that the machine made light of the wind, he decided to take his chance. He rose rapidly and commenced making figures of eight, which are part of the test flights under the new rules. After two had been negotiated the machine suddenly dived and came down in a spiral from a height of some 300 feet. Mr. Kemp, who could be seen struggling with the control to right the machine, just managed to cleverly stop the downward plunge as the machine neared the ground. The undercarriage was swept away and all the planes were damaged, but the body was unbroken. Mr. Kemp was unscratched. The fall was caused by the left-hand planes buckling and the warping being too powerful for the rudder.

Mr. Dolphin was next out on the Hanriot and made several very good short flights, and Mr. Watkins was busy carrying passengers, taking up Captain Maitland, Mr. Fisher and a lady passenger.

Mr. Sassoon had a try with the Sommer, which has been entirely rebuilt since its smash a few weeks back. The engine was not up to the mark and the machine was soon in trouble. He started off and rose to about 30 ft., evidently with the intention of flying over the river, but the engine gave out just before the river was reached. There not being room to turn, the machine struck a mound which carried away half the undercarriage and broke the propeller. The machine jumped into the bushes which grow on the side of the river and remained perched among the branches, Mr. Sassoon having a narrow escape from a ducking. The undercarriage, elevator, outriggers and lower plane were broken up. Mr. Macfie made a short flight on his biplane, and then handed the machine over to Mr. Valentine who made a circuit on it at a height of 60 ft.

## The Hawkins-Ogilvie Aeroplane at Winchester.

AT last Captain Hawkins and Mr. Bertram Ogilvie have overcome their engine troubles, and before the end of the present month they hope to be able to conduct some tests in actual flights with their aeroplane. Last week the machine was out in the open, and in the course of some rolling practice the automatic balancing apparatus gave complete satisfaction, and it is hoped before very long the machine will be able to carry out the long promised cross-country flight to Shorncliffe.

## Aviation in the Isle of Man.

Now that the motor car race has been dropped from the proposed programme of the Douglas Jubilee celebrations, increased attention is being given to the matter of the flying events. It is hoped to organise a three days' display, while an endeavour is being made—possibly bearing in mind the hare and the tortoise race—to organise a race round the island between two aeroplanes and the steamer "Ben-my-Chree."

## Engineers and Draughtsmen Wanted.

ENGINEERS, draughtsmen and others with recognised qualifications in their own field of work, who are anxious to enter the aeroplane industry, are invited to send their names, in confidence, to the Editor of FLIGHT.

We have frequent applications for first-class men and have, in consequence, decided to maintain a confidential register of those holding or desirous of holding responsible positions in this new movement. We consequently invite all those who would like to have their names entered in this register, for which there is no fee, to communicate with us.

Practically no flying was possible on Thursday owing to the wind. In the morning Lieut. Boothby made his first essay on the Hanriot, and rolled for half an hour. In the afternoon Mr. Macfie went for a flight down the ground, but found the wind very puffy and so returned to his shed. Friday was a blank day owing to the high wind.

A calm but misty day resulted on Saturday. One of the best flying days this year, however, was witnessed by a large gathering. Practically every machine that was ready at the time came out, and a very large number of passengers were carried. Mr. Billing was at work in the morning and flew a circuit with his new E.N.V. installed. The afternoon was a time of excitement, as the aviators from Hendon were expected. Mr. Ducrocq had a busy afternoon with passengers, as had Mr. Watkins. Mr. Sopwith carried several lady passengers, and made several high flights. Once he had rather a narrow escape, while making a very fine *vol plané* from about 100 ft. On approaching the ground he found that he was hardly inside the track, and his engine failing to start again it was only by expert management that he succeeded in landing on the flying ground. Mr. Astley, who has now learned the art of effectively landing this machine, made several fine trips round the ground with passengers on "Big Bat." Mr. Martin soon after was espied approaching from over the tree tops. The Grahame-White "Baby" seems to have a good turn of speed. Mr. Martin was much admired for the ease with which he started back. He made none of the usual preliminary circuits, but just rose and made straight for the railway, being soon lost to sight. Mr. Ducrocq made a start for Hendon, but lost himself and had to turn back. There was considerable excitement when Hamel arrived from Hendon on his Blériot. He was keeping at a good height, and came down *en vol plané*. Mr. Hamel, as is known, made best time both ways. Mr. Blondeau and Mr. Snowden-Smith were during the afternoon flying on the former's machine.

Sunday, Monday and Tuesday were all blank days owing to the inclement weather.

## Laffan's Plain.

ON Wednesday, March 8th, Mr. de Havilland carried out some rolling practice with the Farman, which appeared to be slightly out of trim. Capt. Burke then took over the machine, but finding that the tuning-up was not to his satisfaction the work was brought to an end.

Mr. S. F. Cody made several trips over the balloon factory, including two passenger flights—one with Major Sir A. Bannerman, and another with Mr. J. Bett. Mr. Bett's weight is 17 stone, and Mr. Cody's 16 stone 3 lbs.

The Army airship "Beta" was brought out while Mr. Cody was flying, and made a splendid trip of over 40 mins. The very strong wind greatly hindered her progress, and she did not make more than 6 miles an hour when going against the wind.

On Thursday evening Mr. de Havilland made a complete circle of Laffan's Plain with the Farman, which appeared to be in much better condition than on the previous day.

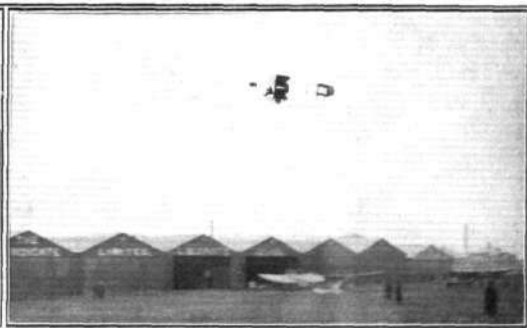
#### London Aerodrome, Colliadale Avenue, Hendon.

**Grahame-White School.**—Wednesday of last week was an exceptionally good day for flying; the wind, having modified to a velocity of 8 miles per hour, was practically negligible. Quite early in the morning it was foggy, but as soon as it cleared away Greswell brought out the Gnome-Farman, and made a good flight of five circuits of the aerodrome at an altitude of 250 ft. Hubert then for a spell took charge of the same machine, and repeated the manoeuvre. Preliminaries over, a very full day's flying instruction commenced. Turner was the first pupil to be taken up with Greswell for six circuits; during the flight they mounted to 200 ft., descending with the engine cut off. Mr. J. V. Martin was the next out, he taking his wife as a passenger for a 15-min. flight. Greswell then gave instruction to Ridley-Prentice, who took control of the machine during two circuits. On their descent the instructor gave Mrs. Martin an excellent flight, including several excursions over the neighbourhood. Hubert then took the instructor's seat, and took up with him Turner, who also had charge of the lever at intervals, to gain confidence in control. Two spectators were then given passenger flights, one of them being so impressed by his experience that he signified his intention of joining the school by signing a cheque for tuition straight away. Two more lessons were given before lunch by Hubert, who took Ridley-Prentice and Turner for flights of half-a-dozen laps, descending in each case *en vol plané*. Lunch over, Ridley-Prentice was again taken up by Greswell for several circuits of the aerodrome. At 2.45 the "New Baby" made its appearance with its designer, Mr. Grahame-White, at the lever, he flying three circuits at an average altitude of about 60 ft. Clement Greswell then took charge of the machine, and considering that it was his first trial of this new machine put up a remarkably good performance of six circuits; following this, Martin made a similar flight. Owing to the rising wind work then had to be abandoned for a time. At 4.15 the three pilots, Messrs. Greswell, Martin and Hubert, came out on their respective machines, the Gnome-Bliot, the "New Baby" and the Gnome-Farman, and practised the right-hand turn, which they all accomplished with success. By way of terminating the day's flying Hubert, with Ridley-Prentice as passenger, set off on a climbing expedition, and succeeded in forcing the old school Farman to an altitude of 600 ft. At that altitude he performed two figures of eight, then switched off his engine, planed to earth, and alighted faultlessly.

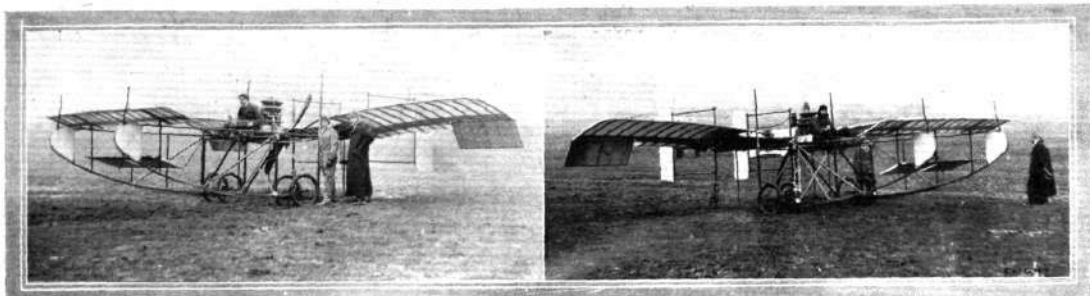
The inclement weather on Thursday, which was blustery and rainy, put all thoughts of flying out of the question. Next day was an improvement; and Martin was out as early as 7 o'clock in the morning, taking with him his wife as passenger for a 20-minute flight. Hubert then gave instruction to Turner on the school Farman, and during a long flight of half an hour's duration, the pupil occasionally took control of the machine. Mrs. Martin was also given another lesson by her husband, following which Greswell took Ridley-Prentice for a flight of half-a-dozen laps of

the aerodrome. At this stage the wind rose and unfortunately prevented any flying during the rest of the day.

Saturday was an excellent day, the weather conditions being all that could be desired. Competition flights for the prize offered by Mr. Grahame-White and the B.A.R.C. jointly for the fastest return flight between Brooklands and Hendon rendering the day's proceedings extremely exciting; while Mr. Grahame-White gave a rare demonstration of his exceptional capabilities as a Farman pilot. The first flight of the day was made by Greswell on a Farman, being more or less in the nature of a test before giving pupils instruction. Turner was the first to receive instruction being taken up by Greswell on the Farman for a long flight. Martin, in anticipation of flying to Brooklands, got out the Grahame-White "New Baby" racer, and made a good trip of three-quarters of an hour's duration, going right outside the aerodrome, and circling the Brent Reservoir. Meanwhile, Greswell had taken his friend, M. Prier, the Bliot School instructor, for a flight on the school Farman. Hubert commenced his morning instruction by taking Ridley-Prentice for an extended flight, following which he gave passenger flights to Messrs. Cedric Lee and J. G. Kitchen. At this stage Greswell made a most interesting flight on the Gnome-Bliot, by way of testing the machine preparatory to leaving for Brooklands. While Hubert was flying with Mrs. Martin as passenger, Greswell set off, after attaining an altitude of 1,000 ft., for Brooklands. Grahame-White then mounted the school Farman and gave a really wonderful exhibition of quick turns, banking up to an angle of quite 60 degrees on some occasions; he finished his flight of a quarter of an hour's duration by shutting off his engine while over the sheds and *vol planing* to the ground. Martin made a sensational start for Brooklands; he got off the ground at a terrific speed, and while scarcely 10 ft. from the ground made an extremely sharp left-hand turn, and doubled back in the direction of Brooklands. An idea of his smartness may be gathered from the fact that only 34 secs. elapsed from the time he rose in the air to the time he left the boundaries of the aerodrome. As soon as Martin had got out of sight, Grahame-White, with Ridley-Prentice in the passenger seat, made a good flight of 10 minutes' duration, each taking the lever alternately. Lessons were then given by Hubert to Messrs. Turner and Raglus. The excitement rose high as to the probability of competitors arriving from Brooklands at the aerodrome, so Mr. Grahame-White, with Master Stanley Guy Lewin, set off in that direction to ascertain if any were on their way. Returning, he made a wide circle over Cricklewood at a height of 1,000 feet; and on reaching the aerodrome landed with a superb *vol plané*. It was thoroughly amusing to see the youngster waving his arms frantically, and shouting with sheer glee, as Mr. Grahame-White brought the machine carefully to earth. More passenger flights were given by Mr. Hubert on the Gnome-Farman, and then Martin, by way of experiment, took up as passenger the head mechanic on the "New Baby" machine. She rose well and Martin proceeded to fly figures of eight, descending at the end of a ten minute flight. At this stage we had news over the 'phone that Greswell had evidently lost his way, and fearing to run short of petrol, had descended at Ashford in Middlesex. Mechanics were at once sent off on cars to assist him. Meanwhile Turner, the pupil, who had never yet taken control of a machine himself, was making good straight flights on the school Farman, landing in quite excellent style. Ridley-Prentice then made straight flights on the



**HENDON-BROOKLANDS-HENDON.**—Mr. Martin, on the Grahame-White "New Baby" racer, was one of those who, on Saturday, made fine flights for this competition. In the left-hand photo Martin is just starting away from Hendon Aerodrome. An idea of the rapidity of the "get-off" can be gathered by the fact that although he only started from the spectators in the background, the tail is well up, and the ailerons are flying right out. Only 34 secs. elapsed before the right-hand photo was secured, and in this time Martin had to make a complete turn and double back on his original direction.



**THE VALKYRIE SCHOOL MACHINE AND SOME PUPILS.**—On the left is seen Mr. Clutterbuck at the helm, and just about to start. Standing by the side of the machine is the school instructor and Mr. Cedric Lee, the latest pupil. The right-hand photo shows Mr. Chambers in the pilot's seat just about to start, with two other "Valkyrie" pupils waiting to see his ascent.

same machine, one of them being a phenomenal *mutum in parvo*, consisting of a record "get off," an acute right-handed turn with terrific banking, and an unintentional *vol plane*. Wonderful to relate the machine returned to the hangar with only one aileron lever damaged. It was only owing to the failing light that flying had to be abandoned.

The air of Ashford is evidently very invigorating, as on Sunday Gresswell was out at 6 o'clock in the morning, had fitted his wings on his Blériot, and was back at the London Aerodrome by 8 o'clock. Not long after he landed the wind rose, and rain fell, preventing any flying throughout the day.

Both Monday and Tuesday were too windy for flying.

**Valkyrie School.**—"Valkyrie IV" school machine, in the hands of the School instructor, was out on Wednesday last week, and made altogether five circuits. There was a good deal of wind at the time, but the machine behaved with great steadiness.

Despite a gusty breeze on Saturday, the Valkyrie School instructor took out "No. IV" about mid-day and executed several circuits of the aerodrome very gracefully. The wind then dropping, several pupils claimed his attention for the rest of the afternoon. Both Mr. Benson and Mr. Chambers put in good practice making straight flights, and Mr. Cedric Lee, of Manchester, took his first lesson. Unfortunately the day ended with a mishap owing to a Blériot pupil charging one of the Valkyrie School machines, and demolishing its left main plane. For the first time for months the big passenger carrier was not in evidence, as it is having its planes re-covered. It will be on the wing again in a few days, and some interesting doings should then be chronicled, as several cross-country flights have been booked. The new "Baby" Valkyrie will be finished on Monday, and its appearance is being looked forward to with considerable interest. Many improvements are noticeable in this dainty little machine, which is cleaner in design and obviously lighter than the old Type A. The new method of attaching the main stay wires of the planes to the frame is particularly neat, and greatly simplifies the detaching or erection of the planes.

## Royal Aero Club Flying Ground, Eastchurch.

FOR one reason or another little or no actual flying has been doing at Eastchurch during the last month or so. On Sunday, the 4th inst., Mr. Jezzi, however, was hard at work, and was flying most of the day.

On Thursday last, the 9th inst., the Hon. Maurice Egerton took out his new Short biplane. This is roughly of the Farman type, but has, of course, the strong landing gear which has been so successful. It is fitted with a Gnome motor, and the pilot's and passengers' seats are enclosed in a shrouding.

On Friday Mr. Egerton was out again doing some straight flights, and on Sunday morning early he made a fine trip, flying off first to Shellbeach, then in the direction of Sheerness.

## Salisbury Plain.

WEDNESDAY morning of last week broke fair and calm, and three of the Bristol machines were out early, these including the E.N.V.-engine No. 19, the Gnome No. 12, and the biplane fitted with extensions. Both Mr. Low and Mr. Thomas were present, while M. Tetard was kept going all the time giving lessons to various pupils. Mr. Low brought out the Bristol monoplane, which has been fitted with a 50-h.p. Gnome engine. The engine was, however, not at its best, and after a little rolling practice, the machine was taken back to the shed for tuning up. In the afternoon the engine was being tested in the shed when the chain anchoring the monoplane broke and the machine rushed into the closed doors, damaging the engine and breaking the propeller. Although a twenty-mile wind was blowing in the afternoon, both M. Tetard and Mr. Low were at work, the former giving instruction to his many pupils. The Bristol "Village" is being extended by the erection of two more sheds.

There was no further flying until Saturday morning, when M. Tetard was flying in the rain, and he contented himself with a circular trip of about three miles. Mr. Cockburn is much missed since he left for Eastchurch, where he is giving instruction to the Naval officers.



**HENDON-BROOKLANDS-HENDON.**—Mr. Martin getting ready for his return to Hendon. A fresh "arrival" —just in sight—momentarily stops operations.

"Flight" Copyright



## HENDON-BROOKLANDS-HENDON.

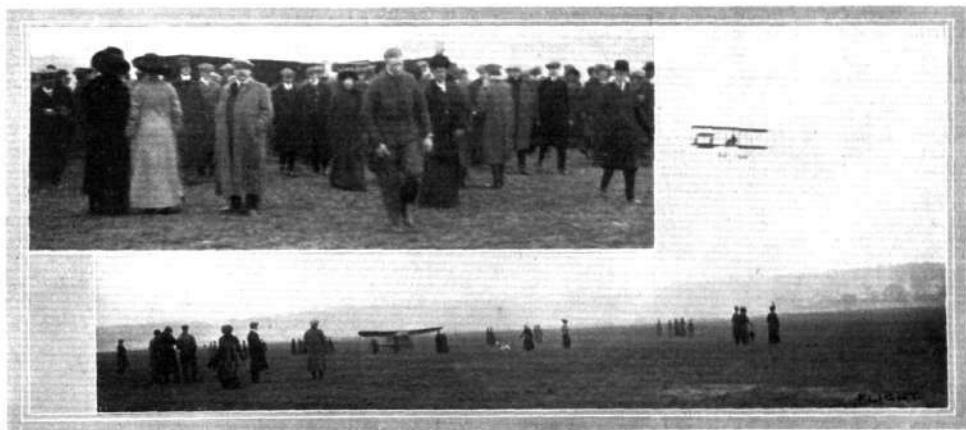
AFTER having had to put up with two Saturdays on which flying was impossible, those aviators who had fixed their eye on the prizes for a double flight between Brooklands and Hendon were much relieved on Saturday last to find the conditions more suitable, although the indications of fog made the prospects none too alluring. The first to start was Mr. C. H. Greswell, who, at eight minutes past two, got away on a Gnome-engined Blériot from the London Aerodrome at Hendon. He at once struck out across country, and passed over Wembley, Perivale, Hanwell, and Hounslow. At this latter point he mistook his direction and followed the main London road to Ashford just by Staines. Realising that he had lost his way and fearing that his petrol supply was getting low and might run out at any moment, he decided to come down and abandon the attempt.

About six minutes after Greswell had left, Mr. J. D. Martin rose from the aerodrome on the Grahame-White new "Baby" racer. He passed over Ealing and struck the River Thames between Brentford and Twickenham. Following the river he reached Surbiton, and later passing over Hampton Court Park at a height of 3,000 ft., he sighted the London and South-Western Railway line and followed it to Brooklands. Although the news of his start from Hendon had reached Brooklands, he was hardly expected quite so quickly, his net time for the trip being 31 mins. 31 secs. He rested at Brooklands for 37 mins. 26 secs. and saw Mr. Ducrocq, the only aviator to make the attempt from Brooklands, leave for Hendon. Mr. Martin stated that he had encountered very heavy mists, and Mr. Ducrocq eventually experienced the same trouble only in a more aggravated form. At twenty-five minutes past three Mr. Martin set off to return to Hendon, and with the object of dodging the fog made a wide sweep over Walton-on-Thames and Kempton Park. A little later he passed a biplane travelling in the reverse direction, which proved to be Ducrocq, who having found the fog too thick decided that it was not safe to continue on his journey, and therefore returned to his starting point. Not long

afterwards Mr. Martin passed over a Blériot machine, which turned out to be piloted by Mr. Gustav Hamel, who was winging his way on the outward journey to Brooklands. On reaching Osterley Park Mr. Martin lost his bearings, and instead of making in a northerly direction he kept straight on, and mistaking a large reservoir for the pond at the Welsh Harp he went straight over it and landed in a field by St. Albans. There he had coffee with some farmers, a very welcome hospitality owing to the intense cold. After a delay of fifteen minutes, with the aid of a ploughman who started his engine and gave him his direction, he left for Hendon, following the Midland Railway line, arriving at the aerodrome without further incident. The spectators at Hendon were in the meantime somewhat anxious at having no news of Mr. Martin or any sign of his coming, and, although relieved, they were rather surprised to see him arrive at a quarter to five from a northerly direction. His net time for the return journey from point to point including the 15 mins. stop at St. Albans had been 1h. 19m. 3s. A few minutes after he came down a monoplane was seen approaching from the south, and as it got nearer and nearer it was recognised as the Gnome-engined Blériot of Mr. Hamel. He had had practically no difficulty, and had made the outward trip to Brooklands in 20 mins. 29 secs., while the homeward journey had taken 29 mins. 6 secs. He arrived at Brooklands about six minutes after Ducrocq had returned, and in view of the foggy conditions prevailing he was advised not to attempt the return journey, but determined to go back after resting for half-an-hour.

Mr. Greswell was up early on Sunday morning and by 7 o'clock had fitted the wings to his Blériot, which had been taken off on the previous evening in order that the machine might be garaged. He started on his way back to Hendon, at which spot he arrived at 8 o'clock in the morning.

To-day (Saturday) is the last day in the competition for the prizes of £30 and £20 for the two fastest aeroplanes from one aerodrome to the other and back.



"Flight" Copyright.

HENDON-BROOKLANDS-HENDON.—Mr. Hamel, who made best times, arrives at Brooklands from Hendon on Saturday. His Blériot is seen on the ground, and inset he is seen in the centre immediately after landing.



## The Latest Curtiss Biplane.

SEVERAL interesting modifications have been incorporated in the design of the latest Curtiss biplane, as used by Ely and Curtiss himself. One of the most noticeable of these differences is the pivoting of the ailerons to the rear struts instead of the front ones, while the biplane elevator has given place to a single elevating plane, working in conjunction with the rear tail planes. The elevator is placed nearer the main planes and has a small triangular fin above it. Another improvement is that the main planes are now double-surfaced instead of only single-surfaced, as in the original machine. The span of the main planes is 30 ft., while the chord is 4 ft. 2 ins. The centre part of the machine, including the bracing, is built up of steel tubing.

## An American Twin-Screw Monoplane.

ONE of the most successful flying machines at the Mineola Flying Ground, New York, during the first two months of this year was the Fairchild monoplane, a distinguishing feature of which is its system of twin-propellers driven in opposite directions by chains from a 100-h.p. two-cycle Emerson motor. The framework of the monoplane is entirely constructed of steel tubing and the engine is arranged under the main planes although the pilot sits in the same position as in the Antoinette monoplane. The tail is of the Demoiselle type. Piloted by Frank Schumacher, some very good flights were made until February 11th, when, while flying in a fresh wind the machine was capsized when turning.



# FOREIGN AVIATION NEWS.

## From Biarritz to Pau.

On the 7th inst. Lieut. Conneau and Lieut. Malherbe, on a brace of Blériots, successfully returned to Pau from Biarritz. It will be remembered that, as recorded in our last issue, they left Pau on the 3rd inst., in company with Captain Bellenger and two other officers, with the intention of flying to Paris. They were stopped by the fog at Libourne, and Lieuts. Conneau and Malherbe started to fly back via Bordeaux and Biarritz. They succeeded in covering the 100 kiloms. which separate Biarritz and Pau in 58 mins.

## Lieut. Menard at Satory.

At Satory Camp, on the 7th inst., Lieuts. Lucas, Binda and Chéutin all made good flights, and flew over Versailles and the environs. Lieut. Menard made a trip to Chartres during the morning, and circled above the Cathedral at a height of 1,500 metres, afterwards returning to Satory. In the evening he again went over to Chartres, this time reaching a height of 2,000 metres. On the return journey he was faced with a very strong wind and therefore landed at Bourg-la-Reine, where his unexpected arrival caused some excitement. Later he flew over to Villacoublay, from which place he returned to Satory on the 9th inst.

## Sommer Machines at Douzy.

A good deal of testing of Sommer machines was in progress at Douzy on the 8th inst. Molla, after a preliminary spin of 20 mins. on his monoplane, tested three of the new military machines. On one of them he rose to a height of 350 metres in 10 mins., but subsequently bettered this on another machine by rising 400 metres in 7 mins., carrying a useful load of 280 kilogs. on the machine. M. Sommer himself tested two new machines and also took several passengers for trips, while Bathiat made three trials on his new monoplane. On the following day the work was somewhat similar, and among the visitors was M. Clement, who was taken for a trip by M. Sommer.

## At the Farman School, Mourmelon.

On the 8th inst. Mr. Henry Farman was busy testing his latest racing biplane, and afterwards made trials with various machines, being accompanied in several trips by his father as passenger. Wynmalen also took several passengers for cross-country trips, while at the Military School Captains Balenzi and Casse and Lieuts. Lafargue and Devet were each up for a period of about three-quarters of an hour.

## Testing a Military Breguet.

BEFORE the military delegates M. Breguet carried out an interesting test on his biplane on the 10th inst. Leaving his aerodrome at Douai he journeyed to Arras and back, landing at La Brayelle aerodrome after a flight of an hour at a height of 300 metres and carrying a useful load of 290 kilogs. In the afternoon he was carrying several pas-

sengers, including Madame Nevue, Captain Alexandref, Aide-de-Camp of the Grand Duke Alexander of Russia, is at Douai testing one of the Breguet biplanes.

## Activity at Juvisy.

Now that the weather is a little calmer a good many aviators are taking up their quarters at the Juvisy aerodrome, and these, together with those who have been there for some time, make the scene on most days a busy one. Ladougue, on his Goupy, indulges in a cross-country flight whenever the weather is at all suitable, while the many pupils at the Goupy School are continuously being given lessons. On the 10th inst. Champel, after giving lessons to his pupils, took Prof. Gache, the well-known French writer on aviation matters, for a lengthy trip, while Gaudard was flying for 1½ hrs. Among the many others who were in the air on that day were Jean Jenoit, who was up for 45 mins. and finished by a remarkable *vol plané*, Gassier, who was out on the "Sylphe," and Landron, who was flying on the "Autoplan" in the morning for over an hour.

## Morin and Vedrines at Toulouse.

MORIN on his Blériot and Vedrines on his Morane made several splendid flights at Toulouse during last week. On the 9th inst. they both flew to Montauban and back, while on Saturday Vedrines on the Morane flew to Carcassonne, thereby winning the prize of 10,000 francs offered by the local newspaper. Leaving Toulouse at 3 o'clock he first flew over to the military camp at Castelnaudary, and then at 4 o'clock started again and arrived at Carcassonne at a quarter to five. In the evening he was entertained at a banquet. On Sunday during some exhibition flights he got up to a height of 2,050 metres.

## Honours for Renaux.

THE Aero Club of France have decided to have a special medal struck in honour of M. Renaux's Puy de Dome flight, and this together with the prize of £4,000 will probably be handed to him at a meeting to be held in the Sorbonne on the 29th inst., when various other Aero Club prizes will be distributed.

## The Voisin "Canard."

PERHAPS in justification of its name the Voisin "Canard" is to be adapted, by having floats fitted to the under carriage, for rising from and alighting upon the water. When the necessary alterations have been carried out the machine will be tested on the Seine at Billancourt by Bibesco, who afterwards contemplates flying across the Black Sea from Constantia to Constantinople.

## Cei Flies over Paris.

ON the 10th inst. Cei on his Caudron biplane rose from the Issy Parade Ground, and gradually climbing up to a height of 1,800 metres veered off in the direction of Paris, over which he passed. Returning to Issy he descended by a series of spirals in 3 mins.

## Prince de Nissole Crosses Paris.

ALSO on the afternoon of the 10th inst. Prince de Nissole, mounted on his Tellier monoplane, rose from the Tellier ground at Juvisy and then flew to Issy, where he landed after being in the air for 18 mins.

## From Etampes to Orleans.

ACCOMPANIED by a passenger, Trotton, Bobba on his Goupy biplane started from Etampes on Saturday morning, and directing his way to Orleans, arrived there 40 mins. later, landing at the Groues flying ground. He intended to stay there only a short time, but in attempting to rise one of the wheels was buckled, and so, in view of the strong wind which had risen, he determined to stay for the remainder of the day.

## Military Test for a Goupy.

WHEN Commandant Renaud and Lieut. Desguillon arrived at Juvisy on Saturday to take over one of the military Goupy biplanes, by way of a little test of the machine, they asked Ladougue the pilot to carry a dummy despatch to Satory Camp. Accompanied by Portier as passenger, Ladougue left Juvisy at 4h. 55m. and safely landed at Satory 20 mins. later. Leaving Satory on the return journey at 5.45 the aviator was back again at Juvisy at 6.2. During the trip he went up to a height of 1,200 metres.



Compass used by Renaux during his great flight from Paris to Puy de Dome. The dial is floating in a mixture of alcohol and water, and the casing is mounted on gimbals.

### Statue of Liberty Prize.

ACCORDING to a cable message from New York, the Aero Club of America have reconsidered their decision regarding the above prize and awarded it to Jacques de Lesseps, disqualifying Mr. Claude Grahame-White for "fouling Pylon 5." If this decision be correctly reported it would appear to be somewhat quaint.

### A New Military Voisin.

ON Saturday morning some military delegates visited Issy to witness some trials of the latest military type Voisin machine, the main planes of which are 17 metres span. Piloted by Colliex the machine made two trial trips of an hour each, and on both occasions rose to a height of 400 metres in 9 mins. Colliex has expressed the opinion that the machine is capable of doing 80 k.p.h.

### Flying from Douai to Mourmelon.

ACCOMPANIED by Lieut. Peralda, Lieut. Ludman, piloting a Breguet biplane fitted with a 50-h.p. Gnome engine, left Douai at 10 o'clock on the morning of the 8th inst. He landed at La Fere for luncheon, and then continued on to Courcy, near Rheims, where a stop was made for petrol, and at 5 o'clock he landed at Mourmelon, having successfully made the trip in accordance with a programme which he had drawn up previous to starting.

### Cross-Country Flying by Night.

ACCOMPANIED by M. Vlemmeckx, Lanser started off from Etterbeck just as dark was falling on the 7th inst. He made a turn over Louvaine and then flew on over Tirlemont and St. Trond. By the time this point was reached it was quite dark, but the aviators landed safely at Kiewit by the aid of the light of a great bonfire which had been lighted. Altogether 80 kiloms. was covered in an hour and three-quarters.

### A Mishap at Johannisthal.

WHILE giving a lesson on an Albatross aeroplane to his pupil Dr. Geyer at Johannisthal, Koneig handed over the control of the machine to the pupil. Unfortunately the latter was not sufficiently expert in the handling of the levers and brought the aeroplane down on top of the shed from which it fell to the ground. The machine of course was smashed but the aviators managed to get away with only rather severe contusions.

### The Saxony Circuit.

THE subscription list in connection with the proposed flying race in Saxony has now been closed, and if the proposal that the district subscribing the largest sum should be the starting and finishing point is carried out this should fall to Chemnitz, which has subscribed 106,359 marks. Dresden comes second with 55,000 marks, and Leipzig third with 28,000 marks. The event is due to start on May 20th and finish on May 29th.

### A Nice to Corsica and Back Prize.

A PRIZE of 10,000 francs has just been offered by the Town of Nice through the local Aero Club and it will be awarded to the aviator who, between April 16th and 23rd, succeeds in flying in the fastest time from Nice to Calvi in Corsica and back again to Nice. It is announced that Aubrun is almost certain to compete on his Deperdussin monoplane while other probable competitors are Count Robillard-Cosnac, and the Marquis De Villeneuve Trans.

### Flying at Naples.

DURING last week the inhabitants of Naples enjoyed the sight of two aeroplanes of very different types flying over their city when Fischer and Martinet, on their Henry Farman biplane, made several fine trips which were greatly to the taste of the 40,000 spectators, while Weiss on a Koehlin monoplane also made a fine flight at a height of 500 metres above the city.

### Bouvier at the Tunisian Manoeuvres.

DURING the morning of the 8th inst. Bouvier mounted on his biplane made a couple of flights over the troops taking part in the manoeuvres in the neighbourhood of Tunis. During these trips he was able to secure information regarding the disposition of the troops which proved invaluable to the General in command, and after the evolutions were over the various officers present, including some British delegates from Malta, congratulated the aviator on his success.

### A Lady Pupil in Algiers.

SOME good flying has been seen lately at the school established by Metrot at Joinville, close to Blida. The natives

are especially impressed by the flying and believe that the aeroplane carries a devil. Great interest is being taken in the school by the European population, especially in the doings of a lady pupil, Miss Ivy Moore.

### A Biplane in the Punjab.

THE first small flight by an aeroplane in the Punjab took place at Patiala on Sunday, February 12th. The machine belongs to His Highness the Maharajah of Patiala, and was piloted by Mr. C. W. Bowles accompanied by a visitor to the State, a Mr. Desroche, who went as passenger. At the end of this first trial the machine ran into a cannon and smashed one of the runners. It is of the Farman type built by Lane of Brooklands, and illustrated in our issue of December 17th, 1910.

### Curtiss and the Gordon-Bennett.

HAVING re-purchased his old works at Hammondsport, New York, Glenn Curtiss has given up the idea of establishing a factory in California. He has announced his intention of making a serious attempt to again win the Gordon-Bennett Cup and is engaged on the design of a very fast racer for this purpose. He declares it will be necessary to attain a speed of 100 miles an hour in order to win the Cup this year, and he proposes to equip his machine with a 200-h.p. motor.

### Latham and the G.-B. Cup.

MR. HUBERT LATHAM, who is at present holiday-making at Shanghai, has also announced his intention of having another try for the Gordon-Bennett Trophy. He contemplates returning to Paris in April and will at once commence the work of tuning up a special machine for the event.

### American Amateur Aviation.

SUCH is the title of a very interesting brochure which has been published by the Elbridge Engine Company, Rochester, N.Y., U.S.A. The Elbridge engine, which is one of the most successful aviation engines in the United States, has been adopted by a large number of experimenters, and the book contains an instructive account of the experiences of them while it is illustrated with a large number of photographs of various types of machines. Any of our readers who would like a copy of the booklet should drop a line to the Elbridge Company.



Signor Quinto Peggioli, who has just obtained his pilot's certificate from the Royal Aero Club, having qualified at the New Forest Aviation School at Beaulieu on a Blériot monoplane.

## RECORDS WITH AND WITHOUT PASSENGERS.

### Speed Records Passed.

OFFICIAL recognition has now been accorded to the following speed records, all of which are to the credit of Nieuport, having been made at Chalons on the monoplane of his own design. The records for aviator alone were set up on the 9th inst., those for one passenger on the 6th inst., and for two passengers on the 9th inst.

Distance.	Aviator only.		Aviator and one passenger.		Aviator and two passengers.	
	New record.	Old record.	New record.	Old record.	New record.	Old record.
m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.
10 kils.	5 35 $\frac{1}{2}$	5 42	5 58 $\frac{1}{2}$	6 5	6 0	6 10 18 $\frac{1}{2}$
20 "	11 14	12 45 $\frac{1}{2}$	11 54 $\frac{1}{2}$	12 13 $\frac{1}{2}$	11 59 $\frac{1}{2}$	12 14
30 "	16 52 $\frac{1}{2}$	19 32	17 53 $\frac{1}{2}$	18 20	17 52 $\frac{1}{2}$	18 53 $\frac{1}{2}$
40 "	23 22 $\frac{1}{2}$	26 12 $\frac{1}{2}$	23 57 $\frac{1}{2}$	24 24 $\frac{1}{2}$	22 44 $\frac{1}{2}$	24 32 $\frac{1}{2}$
50 "	28 13 $\frac{1}{2}$	32 48 $\frac{1}{2}$	29 38 $\frac{1}{2}$	30 33 $\frac{1}{2}$	29 37 $\frac{1}{2}$	30 37 $\frac{1}{2}$
100 "	...	...	59 16	1 1 32	59 8	1 15 17 $\frac{1}{2}$
150 "	...	...	1 28 37 $\frac{1}{2}$	...	...	...

The other speed records (highest speed) to the credit of Nieuport are:—Aviator alone, 108.958 k.p.h.; with one passenger, 103.211 k.p.h.; with two passengers, 102.855 k.p.h., all over a distance of 10 kils.; while the hour record for passenger flight also stands to his name, with 101.250 kils. The distance records for passenger flight are likewise Nieuport's, as follows:—With one passenger, 150 kils., and with two passengers, 110 kils.

Although they have since been beaten, the records made by Breguet on March 6th at Douai have been passed. They were speed records with two passengers, 50 kils., 38 mins. 37 $\frac{1}{2}$  secs.; 100 kils., 1h. 15m. 17 $\frac{1}{2}$  s.; while the last-mentioned was also a distance record at the time.

### Two and Four Passenger Records.

FOLLOWING upon the remarkable series of speed records made by Nieuport on his monoplane at Chalons the same aviator on the 10th inst. succeeded in beating the speed record with two passengers, and setting up a new distance record under such conditions of 110 kils. in 1h. 4m. 58 $\frac{1}{2}$  s. The times for the intermediate distances will be found elsewhere in this issue in the list of new official records. Afterwards M. Nieuport brought out another machine fitted with a 30-h.p. Nieuport engine, on which he succeeded in flying by himself 80 kils. in 44 mins. 52 $\frac{1}{2}$  secs., getting very near the time of 44 mins. 29 $\frac{1}{2}$  secs., being the world's record of Leblanc.

Another remarkable performance was made on the following day when Busson on the Deperdussin monoplane accompanied by four companions covered 50 kils. in 31 mins. 23 $\frac{1}{2}$  secs. The total weight of the five persons was 352 kils., and the intermediate times were: 10 kils., 6 mins. 16 $\frac{1}{2}$  secs.; 20 kils., 12 mins. 33 $\frac{1}{2}$  secs.; 30 kils., 18 mins. 48 secs.; 40 kils., 25 mins. 53 $\frac{1}{2}$  secs. The monoplane was fitted with a 100-h.p. Gnome engine and the attempt was made over a course of 2.5 kils. at the Courcy-Betheny Aerodrome. The four companions of Busson were MM. Borie, Valentin, Soulier and Scheiber.

## GERMAN PILOT AVIATORS.

FOLLOWING on the complete series of official lists of pilot aviators of Great Britain and France which we have recently published, we are now able, by the courtesy of the *Deutschen Luftschiffer Verbandes*, to give a similar list of the certificates which have been issued officially in Germany. So far they number 63 and with regard to the make of machine it will be seen that Wright's share the first position with Euler, with eleven pilots each, Grage coming next with ten pilots.

Name.	Country.	Date of Birth.	Where Born.	Machine Qualified.	Age.
Arntzen, Orla	Dan.	26 Jan. 82	Copenhagen	Wgt.	21 Dec. 10 27
Behrend, Adolf	Ger.	30 Dec. 69	Königsberg	Sch. H	3 May, 10 7
Bruchhuber, Simon	Bav.	30 May, 84	Meining	H. Far.	6 Aug. 10 20
Büchner, Bruno	Ger.	28 Jan. 71	Alt Gersdorf	Av.	3 Feb. 11 53
Dörner, Hermann	"	27 May, 82	Wittenberg	Dor.	17 July, 10 15
Düker, Werner	"	2 Feb. 87	Düsseldorf	Eu.	17 Jan. 11 15
Engelhardt, Paul	"	27 May, 63	Monster	Wgt.	15 May, 10 1
Euler, August	"	20 Nov. 68	Veldr. Westphalia	Eu.	1 Feb., 10 1
Eyring, Rainund	"	2 Dec. 68	Gumbertshausen	Huth	13 Dec., 10 42
v. Flagler, Theo	Rus.	6 Dec. 80	Warsaw	Av.	17 Feb., 11 59
v. Gornissen, Eilery	Ger.	10 Apr. 86	Hamburg	Eu.	11 Apr., 10 4
Grage, Hans	"	17 May, 79	Koslin	Gr.	1 Feb., 10 2
Grage, Wilhelm	"	14 July, 73	Koslin	Gr.	28 Dec., 10 20
Grulich, Karl	"	3 Dec. 81	Halle, S.	Har.	20 Dec., 10 24
*Haas, Heinrich	"	— 85	—	Wgt.	12 Dec., 10 40
v. Hamacher, Lieut.	"	21 July, 88	Werden R.	Eu.	17 Jan., 11 40
Hauschick, Bruno	"	12 May, 92	Tromel, Ber.	Han.	8 Oct., 10 33
Heidenreich, Fritz	"	24 Nov., 72	Bromberg	Hd.	23 Dec., 10 28
Hein, Oskar	"	21 Jan. 82	Freiburg, B.	Wgt.	6 Aug., 10 21
Henry (Prince) of Prussia	"	14 Aug., 62	Berlin	Eu.	28 Nov., 10 38
v. Hiddessen, Ferd.	"	17 Dec., 87	Minden, W.	Eu.	17 Jan., 11 47
Hoff, Wilhelm	"	7 May, 83	Strasburg E.	Wgt.	13 Dec., 10 47
Hoos, Joseph	"	23 Apr., 73	Braunbach	Hoos	17 Jan., 11 43
Jablonski, Bruno	"	27 Aug., 92	Berlinchen	Wgt.	28 Dec., 10 38
Jeanin, Emil	"	20 Feb., 73	Mühlhausen	Wt.	27 Apr., 10 6
Kahnt, Oswald	"	18 July, 83	Lugau (chles.)	Gr.	28 Dec., 10 31
Kazian, Artemy	Rus.	14 May, 89	Wladikavkas	Gr.	17 Feb., 11 61
Keidel, Fridolin	Bav.	27 Dec., 82	Augsburg	Wgt.	27 Apr., 10 5

König, Benno	Bav.	16 July, 85	Untermeizig	Far.	20 Dec., 10 43
Krassel, Hans	Ger.	21 Feb., 84	Offenbach	Bl.	22 Jan., 10 19
Laitsch, Felix	"	4 Oct., 82	Reichenbrandt	Vois.	5 Aug., 11 19
Lecomte, Leon	Fr.	17 May, 80	Brayères	Av.	17 Feb., 11 53
v. Lichtenfels, Heinrich	Bav.	7 Oct., 66	Schloss Mün.	Eu.	17 Jan., 11 50
Lindpaintner, Otto	Bav.	2 Mar., 85	Munich	com.	14 July, 10 15
Lissner, Walter	Ger.	11 Apr., 82	Berlin	Gr.	7 Dec., 10 25
Lochner, Erich	"	25 July, 79	Aix-in-Cha-	Eu.	15 July, 10 13
Mente, Lieut.	"	— 70	—	pall.	—
Meybaum, Theodor	Rus.	23 Dec., 64	Pernau	Wgt.	25 Dec., 10 32
v. Mosser, Rob	Ger.	1 Jan., 80	Bonn R.	Wgt.	8 Dec., 10 23
Müller, Karl	"	1 July, 78	Mühlhausen	Far.	29 Dec., 10 44
Müller, Oskar	"	28 Mar., 79	Fulda	Av.	12 Dec., 10 28
Noelle, Max	"	18 Aug., 92	Höxter	Gr.	3 Feb., 11 57
Oelehrich, Heinrich	"	5 Feb., 77	Hamme	Sch. H.	21 Oct., 10 37
Otto, Gustav	"	12 Jan., 83	Mülheim	Far.	4 Oct., 10 34
Plochmann, Ernst	"	— 80	—	Gr.	21 July, 10 10
Poulain, Gabriel	Fr.	14 Feb., 84	St. Helier	Poul.	15 July, 10 14
Reichardt, Otto	Ger.	4 Mar., 85	Desau Ank	Eu.	3 Feb., 11 55
Rode, Franz	"	1 July, 78	Odelsien	Gr.	20 Dec., 10 31
Röder, Hans	"	20 Dec., 90	Haus Neindorf	Gr.	3 Feb., 11 50
Rupp, Albert	Sw.	20 Aug., 85	Eichbühl Th.	Alb.	17 Feb., 11 69
Schauerberg, Th.	Ger.	14 Oct., 85	Oldenburg	Wgt.	22 July, 10 22
Schendel, Georg	"	10 Aug., 85	Lauenburg	Dor.	17 Feb., 11 53
Schneider, Fritz	"	16 May, 88	Düsseldorf	Av.	3 Feb., 11 54
Thelen, Robert	"	23 Mar., 84	Nürnberg	Wgt.	11 May, 10 9
Thiele, Erich	"	2 Jan., 74	Halle, S.	Eu.	7 July, 10 13
v. Tiedman, Rich	"	23 Aug., 77	Cassel	Som.	25 July, 10 15
Treitschke, Frid	"	11 Oct., 80	Erfurt	Gr.	18 Oct., 10 56
Weinang, Ernst	"	10 Mar., 85	Ohndorf	Wgt.	13 Dec., 10 36
Werngen, Bruno	"	17 Mar., 92	Beeln, P.	Dor.	13 Dec., 10 40
Wildberg, Helmut	"	1 Jan., 80	Berlin	Wgt.	15 Dec., 10 26
Wilde, Lieut.	Bav.	30 May, 82	Munich	Bl.	13 Dec., 10 41
Wincziers, Eugen	Ger.	20 Mar., 80	Golkwitz	Ant.	7 May, 10 15
Witterstatter, E. W.	Bav.	18 July, 83	Oppenheim	Eu.	17 Jan., 11 52

Country:—Bav.=Bavaria; Dan.=Denmark; Fr.=France; Ger.=Germany; Rus.=Russia; Sw.=Switzerland.

Machine:—Alb.=Albatross; Ant.=Antoinette; Av.=Aviatik; Bl.=Bleriot; Dor.=Dörner; Eu.=Euler; Far.=Farman; Gr.=Grage; Han.=Hanschick; Har.=Harland; Hei.=Heidenreich; Hoos=Hoos; Huth=Huth; K.=Kahn; P.=Poussin; Sch. H.=Schulze Herfort; Som.=Sommer; Vois.=Voisin; Wgt.=Wright.

\* Killed during cross-country race Trier to Metz, Oct. 1, 1910.

† Killed during Magdeburg flying week, Oct. 23, 1910.

‡ Killed at Mulhausen, Sept. 29, 1910.

### The Zodiac Dirigible "Le Temps."

ON Saturday last the Danstette-Gillette-engined Zodiac dirigible was continuing her series of trial trips, and, piloted by Count de la Vaulx, was cruising at a height of 700 metres for about three-quarters of an hour above the aerodrome at Buc, afterwards returning to her headquarters at St. Cyr. At about the same time Jacques Labouchere on the Zodiac biplane set out from the St. Cyr flying ground and visited Buc where he circled above the hangars at a height of 300 metres. On Friday of last week the dirigible made three trips, one of 37 mins. duration, during which a speed of 35 kils. per hour

was attained; a second cruise of about the same duration, while in the third trip the vessel was out for over an hour.

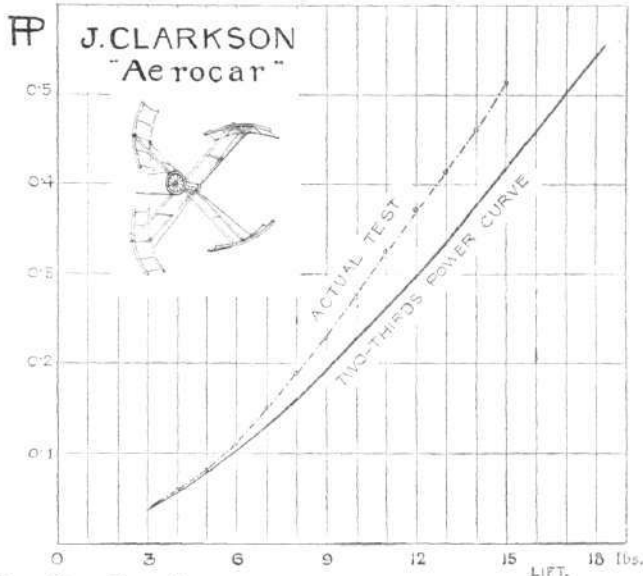
### New Zeppelin Airships.

A DESPATCH from Geneva states that two new Zeppelins have now been practically completed at Friedrichshafen, while the construction of a third for the German War Office will be finished by October next. Of the two already built that designated "VIII" has been built partly from the remains of the "Deutschland," and it will eventually take the place of that aerial liner at Düsseldorf. "No. IX" is intended for passenger work over Lake Constance, and is 104 metres long.

# THE CLARKSON AEROCAR.

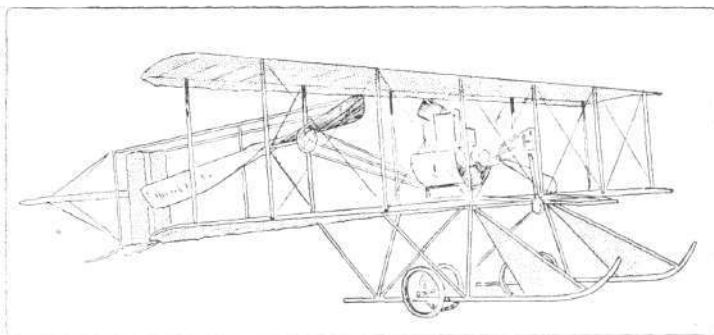
RECENTLY we published an illustration of a peculiar apparatus demonstrated at the Manchester Municipal School of Technology by Mr. Joseph Clarkson. The apparatus in question may be described as a direct-lifting aerial paddle-wheel, which is also capable of propulsion. The paddles, of which there are four in each wheel, are cambered planes and act as such, but they fly end on instead of broad-side on, owing to the limitations imposed by the width of the wheel. A simple crank motion, coupled up by connecting-rods to each paddle, so feathers the blades in flight that they move more or less edge on when not in a position to exert an economic lifting effort. A slight readjustment of the crank motion, which can be instantly accomplished by a lever, resets what may be described as the neutral axis about which the feathering takes place and as the result of such adjustment the resultant pressure from the planes can be inclined forward or backwards, thus giving propulsion in either direction. Mr. Clarkson has carried out various tests on the lifting power of his paddle wheel, the results of which are plotted graphically in the accompanying chart, where they may be compared with the two-thirds power curve that forms the theoretical datum line for the relationship between power and thrust in aerodynamics. Comparing this chart with others that we have previously published relating to propellers, it will be observed that the results are much of the same order.

It is Mr. Clarkson's idea to fit four such paddle-wheels to support and propel an aerial vessel to which he applies the name aerocar.



# THE "BABY" WRIGHT.

The accompanying sketch shows a "model R" Wright biplane which is a much smaller and lighter type than the standard



model and is designed especially for speed and altitude work.

The design was, in fact, the result of the investigations and

calculations made by the Wright Bros. when considering the question of building a defender for the Gordon-Bennett

Aviation Cup last year. It carries no passenger except the pilot but is equipped with the usual Wright engine and control. It was this machine that was used by Johnstone when he ascended to 9,714 ft. at Belmont Park on October 31st, 1910. The span is 26 ft. 6 ins. and the chord 3 ft. 7 ins. The overall length is 24 ft. and the overall height 6 ft. 6 ins. The weight is 585 lbs. and the engine is of the four-cylinder vertical type having a bore and stroke of 4½ ins. by 4 ins., rated at 30-35-h.p. and weighing 180 lbs.

One of these machines, that which was used by Mr. Alec. Ogilvie in the Gordon-Bennett race, will be on view at the Olympia Show, where it will

be staged on one of the Royal Aero Club's stands. In America this machine sells for the same price as the standard model, which is \$5,000.

## Another Club for Paddington.

We learn from Mr. E. Hill, 118, Elgin Avenue, Paddington, that a club is being opened in the district. The entrance fee has been fixed at 2s. and the subscription is 5s. payable half-yearly. The club is already in possession of a glider.

## A Model Aero Club in California.

FROM one of our readers, Mr. Leland S. Lathrop, we learn that a model aero club has been started in Belvedere, California, and the members have been making some interesting flights with several Twining and Clarke models. Members are now also turning their attention to constructing their own models and wish to obtain catalogues of parts, &c. Mr. Lathrop would also be glad to have particulars of any successful models as, so far, the greatest distance flown with the home-made production has only been 200 ft. Mr. Lathrop's address is—Belvedere, Marin Co., California, U.S.A.

The annexed is an illustration of the "Moreover" motto cards brought out by The Coventry Chain Company, Limited, Coventry.

On the back of each is information of a useful character regarding chain driving generally, which is specially suitable to engineers. The Company will be pleased to forward a complete set to any engineer making application to them.





# PROBLEMS RELATING TO AIRCRAFT.

By MERVYN O'GORMAN.

(Continued from page 212.)

16. **How the Three Classes Glide.**—For example, it is found in Class S that when the engine stops the machine automatically adopts its proper angle for a glide, and indeed cannot easily—with the engine stopped—be made to glide too steeply so long as the Vee is maintained. (See Fig. 16.)

If, however, any plane which is in the full propeller blast be a loaded plane, that is, one given a slope for the purpose of lifting part of the weight (and usually of curved profile), such a plane loses part of its normal lifting power in proportion to the falling off of air velocity past it, due to the stopping of the engine.

**Class F, Gliding.**—As an instance, every Farman machine drops its tail the moment the engine stops—a movement which requires that the airman shall at once give a diving movement to his elevator planes lest he begin to glide backwards.

**Class B, Gliding.**—In the case of Class B, the Blériot machine, which usually has a lifting tail, both the main wings and tail ride over the propeller blast, therefore the stopping of the engine diminishes the lift of both—with the result that the speed of travel downwards with the engine stopped, tends to increase a little over the normal speed—a matter which may involve alighting somewhat more rapidly from a glide, but the tail does not drop.

17. **Class S, Gliding.**—In the case of Class S, the gliding conditions appear to be very favourable with a good design of machine. The head resistance can be made low, and I rather think the small number in use is chiefly due to its not resembling a bird, a fact which need have no particular relation to its merits. For the moment it is fashionable to have a tail.



Fig. 5.—Wright.



Fig. 6.—Santos-Dumont.

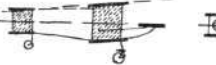


Fig. 7.—Voisin.

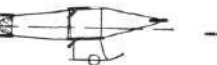


Fig. 8.—Farman.



Fig. 9.—Wright, 1910.

The original Wright machine appears to belong to this Class S, but is not truly in it, because the Wrights openly abandoned the attempt to secure fore and aft stability. Their elevator plane was not a lifting plane, and they trusted to their own skill for balance. I have, however, learnt from those who flew this machine that the fatigue of three or four hours' balancing was very great indeed, and the Wrights at present fit a tail.\*

18. **The History of Stability.**—I am not in these notes concerned with the claims of inventors to priority, but wish to consider for the moment the doings of builders merely as experiments on stability, and not as attaching prime importance to the date when the experiments were made, and accordingly I have not attempted to verify exact dates. I neglect the early trials of Lilienthal (1886), Pilcher (1892-93), Ader (1897), and others, and note that the first successful Wright aeroplane was tailless. It was evolved from a biplane glider fitted with a rudder (1901) and elevator. I do not know whether a tail, properly so called, had been seriously considered by them since they found so much trouble with the breaking of their rudder by slipping back on to it that they hinged it vertically.

19. **Abandoning the Tail.**—It was on the results of their gliding tests that they decided not to use a tail, and hence their first power machine was a biplane with no tail, but having a plane in front which acted as an elevator, and which did no weight bearing (Fig. 5). Such a machine has no automatic stability. It was solely the skill and activity of the man which prevented tipping forwards or backwards, and stability in these directions had to be attended to ceaselessly. Lateral stability was secured by a system of warping one wing and simultaneously counter-warping the other; this was only slightly automatic, due to the intentional looseness of the girder work. This was the state of progress when Wilbur Wright arrived in France (August, 1908), where the reports of his doings which had come from America had incited others to produce notable results, though the

study in France up to that time had moved on somewhat different lines.

20. **Dihedral Angle. The Vee between Wings.**—The first to make any mark in actual flying there was Santos Dumont (1906). His biplane was in some respects the same as the Wrights', but the wings were set at a Vee to one another, that is, a dihedral angle as a help to lateral stability. More important than this was the fact that the front elevator was fairly large, and, unlike the Wright elevator, was set to bear a part of the weight (Fig. 6). This introduced an advance in that it provided a fore and aft Vee for longitudinal stability, an important departure from that of the Wright Bros., whose front plane was merely directional, and was at times set at a negative angle of incidence.

21. **The Trying of Boxed Ends.**—Dumont paid no heed to wing warping, and he apparently recovered his balance by a process the reverse of what one does on a bicycle, namely, by steering away from the side he was falling to. This will be explained later when turning is dealt with.

The first machine that flew for any considerable distance in France was that made by Voisin and flown by Farman in 1907, and this was a biplane which was not boxed in, with a tail which was set to take a part of the lift (Fig. 7). This formed a shallow Vee with the main wings, and therefore helped towards fore and aft stability. It was also fitted with a front elevator placed so very close to the main plane as not to exert an important effect on stability. Voisin then very seriously tried the boxed-in ends; he left them in 1910, learning the lesson from his own disciple Farman, but he returned to them in 1911. The Voisin plane was also, like a bicycle, kept from tilting sideways by the use

of steering rudders until 1910. The steering method has advantages, and is freely used by all aviators on all machines when they have acquired a little skill.

The effect on France of Wilbur Wright's visit was the adoption there of either his system of wing warping or else the use of flaps or ailerons, which are inferior in efficiency and speed of response, but which answer the purpose of raising the wing of which the aileron is lowered. The drawbacks of ailerons are touched upon in para. 32.

22. **Ailerons for Lateral Stability and Banking.**—Take the Voisin biplane, omit the side panels, give it ailerons, and we have the Farman machine (Fig. 8). This was done by Henry Farman in 1909. The elevator is farther in front than that of the Voisin, and not being set to form a Vee with the main planes, it tends, so far, to reduce longitudinal stability, an effect which is countered by increasing the size of the tail, which does form a Vee with the wings.

23. **Tail Flap for Elevating.**—Later, in addition to the front elevator, a flap was put on the tail (1910) to serve as an additional elevator (Fig. 3).

It is a question whether the Wrights learnt in Europe the practicability and advantages of employing the Vee, but it was after their visit here that they used a Vee relationship between the wings and a tail which has been added. It is particularly interesting to note that their front elevator has been abandoned, thereby avoiding the necessity for increasing the size of the tail plane, while we find the French influence in that the rear of the tail is hinged to act as an elevator.

24. **Blinkers for Turning.**—It will be noticed that Mr. George, Mr. Curtiss, Mr. de Havilland, and the Valéry Company seem to have learnt from Wright to use their small vertical planes (or blinkers) in front of the machine as a point to thrust against when steering round a corner. Pischoff also uses a vertical plane, but it is so near the centre that it is evidently only used to damp oscillation due to a very low centre of gravity.

It is to be observed that the latest Wright model retains the blinkers. It would seem to be a feature weighing so little that it is worth retaining on the F Class at least, even if the advantage gained be but small, which is by no means clear.

\* I use the term tail for a plane which is horizontal and behind the main wings. The Wrights fitted a rudder behind their early machines, but not a tail in this sense.



25. Though studied in France more or less concurrently with the others, machines of Class B were later in obtaining success. The Blériot and Antoinette were the most notable. These followed the Wright in warping their wings, and the reason that they were somewhat later in succeeding is possibly due to the fact that from their lesser sail area (for they are monoplanes mostly) they are higher speed machines, a fact which was evidently not known by their makers, and later, when engines of the necessary large power were found, it may have taken longer to find pilots for the high speeds of travel and higher speeds of landing.

The Blériot, in April, 1907, and the Antoinette in February, 1908, appear to have made the first flights with this type worthy of record.

26. The Blériots as usually known (except in one type) have the weight-bearing or lifting tail, and these machines have all been practically of a single type, with the propeller in front of the main planes and the elevator aft of the tail, and hence of Class B.

Blériot has, however, recently (1911) brought out a type of passenger-carrying monoplane, which appears to be essentially a Farman biplane with the bottom plane missed out. This is Class F.

The Antoinette machine has been consistently of the B Class, differing from the Blériot by having a non-lifting tail in place of a lifting tail and by having a Vee inclination between the wings. It is to be noted that any non-lifting tail makes a Vee with the main planes, which must, of course, be inclined to the back.

Countless other aeroplanes have since been evolved, notably the Breguet, Dufaux, R.E.P. and others, which are of the B Class, but with two planes instead of one, and there has recently been a return to the very early type—the S Class—where the small plane is in front. Among these returns are notably the experimental Voisin and others named in para. 12.

27. The 1910 Farman machine has a slight Vee on the lower of the two main planes, while the pilot and the passenger are enclosed in a stream-line body. It is interesting to note that Farman has evolved in the course of his experiments (1908) a triplane, and later a monoplane (1910), with a somewhat low centre of gravity. Neither of these appears to have satisfied him well enough to cause him to alter the type.

With the exception of the experimental machine previously mentioned, the Voisin people were devoting their attention (1910) to a biplane on somewhat similar lines to the Wrights, that is, with no front elevator, but, unlike the Wrights, they used a tail that bears some proportion of the weight.

Santos Dumont entirely changed his designs and produced a small monoplane of importance only because of its small dimensions (1900), and this, as well as practically all the other successful machines can, by a slight effort of the imagination, be regarded as modifications of one or other of the above-mentioned types.

28. **Automatic Stability.**—In addition to the above broad lines of practice for stability, which of course is automatic, but of limited range, there have been a great many attempts to obtain what is called automatic stability. The problem is, briefly, to keep a machine in a generally upright position in spite of the peculiarities of gusts spoken of in para. 10. The first thing to realise is, that the behaviour of an aeroplane is entirely unaffected by any steady wind—a steady wind is identical with still air once the machine is launched. The fact that flying in a high wind is boasted of and acclaimed as an achievement is due to the large range of speed fluctuation incidental to high winds over land. This consideration is important in view of the steadiness of winds over the ocean, and the coming of aero-hydroplanes.

29. **A Broad Gust Ahead.**—A puff into the face of an aeroplane causes it to rise without rolling, and since the machine has inertia, it momentarily relieves the engine of its load and tends to make it race; if the puff desists when the engine has attained an increased speed, the effect of the fly-wheelage of the engine is to keep up the speed in relation to the air by taking work out of the stored momentum.

30. **A Gust Ahead Strikes One Wing Only.**—It is clearly desirable that when a puff strikes one wing only, this wing shall not rise unduly and upset the airman.

In para. 10 I have stated that at points 8 yds. distant winds may differ in velocity in a 2 to 1 ratio. As things are now, when a wing rises unduly, that is, in a heavy roll, the man has two resources: (a) *by the aileron*—he pulls down the flap attached to the lower wing; this causes it to throw down more air and to be accelerated upwards by the reaction;

(b) *by the rudder*—he steers towards the raised wing; this has the effect of diminishing the effective velocity of the raised wing, which therefore drops, and of increasing the effective velocity of the wing on the outside of the circle, which therefore rises. It is to be observed that in either case the force used to oppose the roll is derived from the momentum of the aeroplane, which is accordingly slowed, unless there be a margin of engine power from which to recover speed.

Often both devices are used.

31. When this is the case we may see that the use of the aileron or flap, which is similar to but aerodynamically inferior to wing warping, has the effect more particularly of slowing the forward movement of the wing which is lowest, while the steering method has the opposite effect of accelerating it, and the two effects upon the direction can be made to cancel out. In addition there is a momentary tendency for the local gust itself to push back the wing which it strikes and raises, but this is probably very small. Practice shows that this effect on the airman's course is not much more than that which steering for equilibrium has on the course of a bicyclist. This analysis shows how, unless there be a nice proportioning of the two methods of obtaining equilibrium, the airman may take a direction he does not intend, and it is thus that so many of the learners at Brooklands manage to alight in the sewage farm.

32. **Turning.**—In order to turn, either or both of the movements above named for securing stability are employed; but to turn in a small radius, that is to say, to turn without side slipping, it is necessary to slope the machine in precisely the same way that a car running on the Brooklands track is caused to slope by the banking. This is called for short "banking" the aeroplane. At Brooklands the bank gets steeper and steeper towards the periphery of the turn, and for a car at 40 m.p.h. there is one line, and one only, which gives the correct banking, that is, where the resultant of gravity and centrifugal force acts at right angles to the sloping track.

Now, as an aeroplane when once made is, within narrow limits, a constant speed machine, the banking is always the same for a curve of given radius, and therefore the amount of banking the airman gives to his plane is simple, and varies inversely as the radius of the circle negotiated.

Having regard to the fact that until full banking is effected the aeroplane is pivoting on an axis normal to the plane of the wings, the wing on the outside of the circle has a longer path to follow than the inner wing, and accordingly, as a general rule, the outer wing should be accelerated with regard to the inner. It is unfortunate that the lowering of the wing flap has precisely the opposite effect, and therefore the relative advance of the outer wing is obtained partly by slowing the rest of the machine and partly by accelerating the outer wing by means of the energy so obtained. The general slowing of the machine causes it to droop, as a whole, on turning corners. This general slowing must be put down to the increased head resistance introduced by pulling the flap and the rudder plane into the live air.

It is desirable that the aeroplane should not lose momentum, and therefore the wing should be raised for banking by some means (precisely opposite to the wing flap) which shall accelerate it. Moreover, for very important practical reasons, it would be preferable if the inner wing were *not* lowered, the whole of the banking being done above the level of the previous flight. I need only say that circling near the ground as now universally practised, by lowering the inner wing, has often caused it to touch the earth. This inevitably means an accident which occurs the more readily since the airman (especially if a learner, and flying low, or if on military duty and taking cover) may reasonably wish to fly, practise and manoeuvre at low levels behind hills or trees.

It is advisable, therefore, on turning to raise the centre of gravity of the whole machine, and the energy for doing this must be derived from the engine, and not from the momentum of the aeroplane, if we are to keep the full available stability.

My suggestion for raising and accelerating the outer wing without retarding or lowering the inner one is to provide for an increased blast of air to be directed mechanically past the wing to be raised; the best way of carrying this out would be largely a matter of experiment on the full-sized machine. Given a single central propeller in front of the planes, and an engine with a good margin of power, a deflector could be employed to throw an increased blast to one side or the other. If, however, there be two propellers acting

as tractors, one in front of each wing, the draught from each should be controlled individually by the use of differential gear or crypto type of change speed gear. As an alternative the propellers might be twisted slightly round, though this offers mechanical difficulties. Whatever method is adopted I think that advantage will surely be gained in stability if we do not retard the machine as a whole for the sake of turning a corner, and above all do not retard the wing which requires acceleration. At present, it is found that the amount of aileron work done on a gusty day sensibly retards the machine and gives it a tortuous course. It increases its average head resistance, and on large military type machines with one or two passengers the physical fatigue of working the aileron is very burdensome. The superior quality of wing warping over flap pulling is probably an additional reason for the superior average speed of Blériots over Farmans, but as neither device is "balanced" in the sense in which a rudder is balanced, there should be a distinct

advantage to the pivoted and balanced aileron in the matter of physical fatigue. When the air blast method of steering shall have seen the light I think it may show advantages over both, but it wants experiment.

33. We have seen that the mere turning of the rudder tends to retard and therefore to lower the wing which is inner to the curve, and to raise the outer wing. Whether this banking has to be supplemented by aileron action depends on the design of the aeroplane. I know of one aeroplane for which the automatic banking is inadequate, and another for which it is excessive, and is adjusted by counter-banking. Experiments have shown that blinkers, by preventing side-slip, help the machine bank itself to an appreciable extent; when the blinkers are too large or too far forward their moment is too large, and counterbanking is necessary when turning, a feature not entirely devoid of utility from some points of view.

(To be continued.)

## CORRESPONDENCE.

\* \* The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

Correspondents communicating with regard to letters which they have read in FLIGHT, would much facilitate ready reference by quoting the number of each such letter.

NOTE.—Owing to the great mass of valuable and interesting correspondence which we receive, immediate publication is impossible, but each letter will appear practically in sequence and at the earliest possible moment.

### "All-British" Encouragement.

[1110] I have read with much interest the correspondence on the above subject, and also your leading article of March 4th. Whilst agreeing with your arguments, I think that the inventor who, through lack of financial resources or lack of influence sufficient to enable him to obtain financial help, is compelled to stand down unknown or at least unrecognised, whilst others with possibly no more brains or engineering ability but more fortunately situated in life are able to do what he cannot, deserves sympathy.

Every thinking man must see and agree that the principle of evolution is right, but what of the men who might, with assistance, contribute to development by evolution, not with wild revolutionary schemes but with improvements in detail, such as, in the case of flight, new stabilising systems, landing arrangements, plane forms, propellers, or what not, and in designing new types.

Your leader is headed, "Invention *versus* Achievement." But why *versus*? Should not the two go hand in hand? Sound invention should lead up to achievement, and this is the subject of "British Brains" complaint that, however worthy an invention may be, it is too often one of the many which gets little or no chance of being developed.

It seems to me that what is lacking is influence brought to bear to enable the inventor and capitalist to be put in touch with each other.

Your last paragraph in the leader referred to is particularly interesting. You state that, having satisfied certain scientific experts, "British Brains" "can rely upon all the financial

and commercial aid he wants." Now can he really do so? How is he to make himself known to financiers? I have found it very difficult without influence, and although I have several inventions for improved apparatus connected with aeroplanes which are not only fully patented but have also been actually tested in flight on full-size machines, I have not yet succeeded in obtaining financial aid.

It may come some day, but in the meantime, in the hope of interesting someone in my case, I might mention that I have designed and built two full-size machines, one of which was for a private gentleman and which has been perfectly successful. In this my patents were embodied.

To another friend I supplied one other patented apparatus, a most vital part of any aeroplane. With this his machine flew with a horse-power which had previously been insufficient with two other well-known makes of similar apparatus.

I am prepared to give evidence of the satisfactory nature both of the subjects of the patents and my design of aeroplane to any genuine inquirers who may be prepared to interest themselves in a financial way. SINE ALPHA.

[The word "*versus*" was used solely in connection with the rival claims set up as to whether invention or achievement should be awarded the prizes that are offered for the encouragement of aeronautics. "Sine Alpha" has only to submit full particulars of his inventions and proofs of their prospects in order to obtain publicity for them; and there are plenty of enterprising firms ever on the look-out for likely improvements.—ED.]

### Model Mayfly.

[1111] I enclose a photo of a scale model of my improved type 30-ft. span machine.

The model is 7 ft. 7 ins. span, and has an area of 13·8 sq. ft. and weighs 5½ lbs. It behaves like a full-size machine, and I hope to carry out several tests for weight-lifting and stability. Under varying conditions, in a wind of 24 m.p.h., the model was easily carrying 12·8 ozs. per square foot. I could not



MISS BLAND'S MODEL MAYFLY, TYPE NO. 2.—Towed flight (on left), and soaring (on right)

then get on any more weight without removing the chassis of the model. The controls are the same as the full-size machine, and when the control lever is left free to move on the model the machine is automatically stable, by which I mean she corrects her own movements. In the photograph there was a very light wind and she is soaring tail down. I test all my models the same way, soaring, towed flight and gliding. I do not think the usual light elastic-driven models are of any use for experiments. I expect this model will lift over 1 lb. to the square foot if she will take all the extra weight without breaking.

LILLIAN E. BLAND.

Carmoney, Belfast.

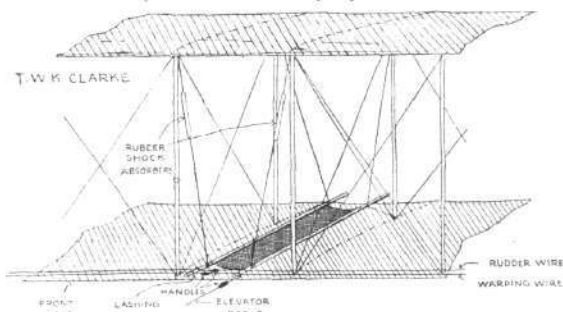
### Pendulum Stability.

[1112] I notice that you have lately had some letters on pendulum stability. In 1906 I had a glider which you were good enough to describe in the *Automotor Journal* (FLIGHT was not then in existence), on which I tried a method of stabilising somewhat similar to those suggested, which may therefore be of interest to you. I enclose a sketch, from which it will be seen that the pilot lay prone on a hammock laced on two side-bearers, which were suspended from the top main spars, rubber rings being interposed in the cords to take up down shock. It will be seen that the hammock containing the pilot, &c., is thus capable of motion fore and aft, and transversely.

The controls were worked by three cotton ropes with handles nipped on—one, fore and aft, working the elevator; one transverse working the rudder; and the third also transverse, and quite close to it to work the warping. The two latter, being close together, could be held with one hand, to be worked together if necessary.

First of all the hammock was anchored by tying to the frame, and the controls were worked by hand. Subsequently the hammock was loosed, and the control ropes were lashed to the hammock bearers, from which it will be seen that in the case of a sudden forward pitch the pilot would swing forward, thereby operating the elevating plane, producing the necessary upward lift again. Similarly for a sideways tilt.

As a matter of fact the results obtained were not very useful, being chiefly of a negative character. There were no proper free flights done with this machine sufficient to teach anything. When flying as a kite the sideways surging was tremendous, whether the controls were automatically or otherwise worked. Moreover, as would almost invariably happen with similar apparatus, the leads to the control wires did not work sufficiently sweetly to allow the control to act evenly, which caused a jerky motion, and this, of



course, would most certainly set up "hunting" very badly; besides, there is the fact that a pendulum tends to continue oscillating, which would still further increase "hunting."

I cannot help thinking that at present the only feasible method of auto-mechanical control would be by the use of a small gyroscope properly applied, but this would, of course, have to be very simple.

Kingston-on-Thames. T. W. K. CLARKE.

### The Vol Plané.

[1113] Kindly answer the following question:—

If an aviator is flying at an elevation of, say, 1,000 ft. and his engine unexpectedly stops, is his descent thereby rendered any more precarious?

Keighley.

J. M. MOFFAT.

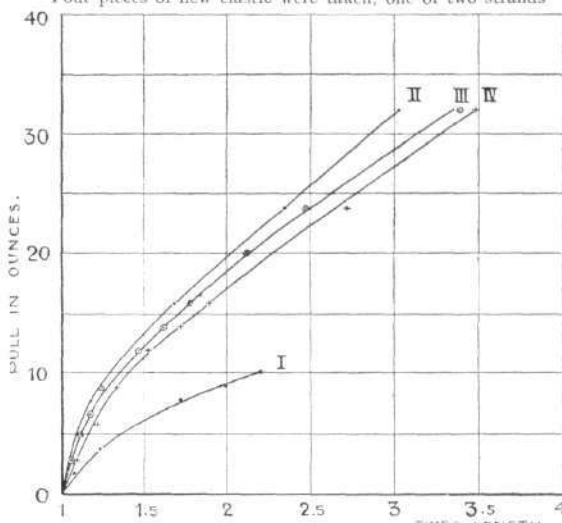
[Provided the surrounding country affords safe landing, an expert pilot is not necessarily in greater danger from having to make his descent with his engine stopped.—ED.]

## MODELS.

### Elastic Motors.

[1114] With a view to finding what could be done on the rather attractive lines for an elastic motor suggested by "Buitre" (No. 1010), I have made a few tests, the results of which are as follows:—

Four pieces of new elastic were taken, one of two strands



$\frac{1}{16}$  in. square, one of four strands  $\frac{1}{16}$  in. square, both 6 ins. long; and one strand of  $\frac{1}{8}$  in. square, 6 ins. long, and one strand  $\frac{1}{8}$  in. square, 4 ins. long.

These were stretched (but not twisted) to different lengths and their pull in ounces noted.

This pull must not be confounded with torque.

The results are shown in curves I, II, III, IV respectively.

$l_1$  = the original unstretched length.

$l_2$  = the respective lengths when stretched.

The curves are plotted to the ratio  $\frac{l_2}{l_1}$  (call this the stretch) as they give a better idea of the size of motor and space required, for a desired result.

From them it may be seen:—

1. That the pull for a given stretch is constant for a given thickness of elastic.

2. That the length, and therefore the revolutions obtainable with a given winding-drum on the propeller-shaft increases with  $l_1$ .

3. That the pull may be said, for practical purposes, to increase with  $l_2$ .

There are a couple of subsidiary points worth noting; curves II and III would have been expected to be alike, as the total thickness of elastic was the same in each case, but the difference is (roughly) 5 per cent. If it is remembered that in curve II there are four strands, and only one strand in curve III, it will be apparent that if an error of one-twentieth too big had been made in cutting the  $\frac{1}{16}$  in. square strands this would, and probably does, account for the difference.

Curves III and IV again should be alike, but they were both taken from the same piece of elastic, stretched for the first time for curve III, and it has evidently taken a permanent stretch, therefore, three times is rather much to give such elastic.

This point, I suggest, is worth further investigation; it is simple enough to test, perhaps some of your readers will oblige. A factor for the quality of the elastic lies about that region.

Supposing that "Buitre" can allow 1 ft. for  $l_1$ , we can now find what will be required and what can be got.

As sixteen strands of  $\frac{1}{16}$  in. square elastic is a reasonable average skein for a model, we will take that cross-section.

From figures already published in FLIGHT (No. 38, Vol. II, pages 750-1) we find that such a skein used as a twisted

elastic motor gives an average working torque of 2.75 ozs. at 2 ins. radius, we will work to that torque (don't mix it up with the pull of the elastic yet).

We will stretch the elastic three times.

Working from curve III, since  $\frac{1}{8}$  in. square equals four strands of  $\frac{1}{16}$  in. square and gives a pull of 29 ozs. when the stretch = 3, sixteen strands of  $\frac{1}{16}$  in. square (or its equivalent cross section) will give us 116 ozs. pull under the same conditions.

Notice in passing that this is a good big pull for the frame and the various bearings.

As we are working to average torque, we must at this stage work to average pull, taking curve III as a straight line, the average pull is half the above amount, viz., 58 ozs. and since we have two winding drums to serve we must take half of this again to find the diameter.

Therefore, where  $r$  = the radius of the drum required to give the torque from this pull :-

$$2.75 \times 2 \text{ ins.} = 29, \\ r$$

$$r = \frac{2.75 \times 2}{29}$$

$$r = .19 \text{ (in.)}$$

So each winding-drum must be (say)  $\frac{1}{4}$  of an inch in diameter.

As the elastic is stretched from 1 ft. to 3 ft. there is 2 ft. of silk ("thread" is hardly strong enough for nearly 8 lbs. pull) to wind on the drum.

Then—

$$\frac{24 \text{ (inches)}}{2 \times .19 \times \pi} = \text{Revolutions} \\ = 20. \text{ Revolutions of the propellers.}$$

And that is all you can get.

From the figures given in FLIGHT, No. 38, this skein of elastic used as a twisted elastic motor would have given 145 revs. and the same torque, i.e., it would have stored up three and a half times (there are two propellers used) the power, and as there is nothing like the same amount of machinery about it, its plant efficiency would have been higher, an important point in flying where the motor always has to lift its own weight.

There is no need to work out any further dimensions, but I would point out that there are twelve bearings, four of which have to work under a pressure of nearly 4 lbs., and for which the ordinary ball-thrust bearing is not suitable.

I do not agree that the "same power and revolutions" is ensured to each propeller; on the contrary, as they cannot be wound up together (by one person) and must not be wound up separately, unless they are geared together, I don't see how they are to be wound up at all, unless some key that temporarily gears them together is used.

The guide pulleys would have to be provided with some kind of feed, or they would not travel along the winding-drums. If some such drums could be used, they ought to be conical, and thus keep the torque constant; as it would be necessary to start winding at the base and wind down to the apex, they must be provided with a helical groove to carry the silk, and so on.

I have dealt thus fully with this particular suggestion as I wish to illustrate the point that even ingenious model-makers are often in too much of a hurry to "see the wheels go round," and should spend more time in making a few quantitative tests, such as the four curves given above, before trying to design the finished article; and that a record of such tests by others would be very useful to all similar workers.

I must apologise to "Buitre" for using him thus, but it is not all my fault; his idea was, as I said, attractive, so much so that I have to thank him for the pleasure and instruction I have derived in finding out what it would do.

Earl's Court.

W. LANGDON-DAVIES.

## Model Propellers.

[1115] In answer to Mr. Batho, I think if he tried a geared motor with the elastic (advertised in FLIGHT, January 21st, it would run at a higher speed. But, of course, it might be that the propeller is not set at the right pitch.

Limpfield.

D. A. HANSARD.

## IMPORTS AND EXPORTS, 1910-11.

AEROPLANES, airships, balloons and parts thereof (not shown separately before 1910).

	Imports.		Exports.		Re-Exportation.	
	1910.	1911.	1910.	1911.	1910.	1911.
January...	2,516	1,196	750	1,088	550	Nil
February	437	3,129	2,950	1,786	—	—
	2,953	4,325	3,700	2,874	550	—

## Aeronautical Patents Published.

Applied for in 1910.

Published March 16th, 1911.

- 2,247. J. KNAPP. Balloon envelopes.  
4,042. H. AND H. A. SANDERS. Aeroplanes, &c.  
6,689. W. H. SAYERS AND W. R. DING. Securing lateral stability in aeroplanes.  
19,204. W. W. GIBSON AND D. W. HANBURY. Flying machines.  
20,951. A. H. BAILY AND — CLEVELAND. Flying machines.

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## DIARY OF COMING EVENTS.

### British General Events.

- Mar. 24-April 1. Olympia Aero Show.  
June 23 .. Gordon-Bennett Aviation Cup Contest.  
July 22 .. Daily Mail Round England Contest.  
Oct. 31 .. Close of British Michelin Cup.

### Foreign Fixtures.

- April 9-21 .. German Circuit—Ulm, Frankfurt, Friburg, Strasburg, Carlsruhe, Mannheim, Wiesbaden (1016).  
April 16 .. Dresden Meeting.  
April 27-May 16 .. German National Circuit—Aix-la-Chapelle, Cologne, Essen, Bielefeld, Brunswick, Berlin (975).  
May .. Paris—Bordeaux—Paris.  
June 4-30 .. European Circuit—Paris, Berlin, Brussels, London, Paris.  
June 4-12 .. Johannisbath National Meeting.  
June 6-11 .. Rome Circuit.  
June 12-18 .. Rome-Turin race.

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